NBS TECHNICAL NOTE

367

A Bibliography of Thermophysical Properties of Methane from 0 to 300 °K

GPO PRICE $ .60

CFSTI PRICE(S) $

Hard copy (HC) 2.00

Microfiche (MF) .65

ff 653 July 65

FACILITY FORM 602

N68-27412 (ACCESSION NUMBER)	(THRU)
120 (PAGES)	1 (CODE)
CR-95519 (NASA CR OR TMX OR AD NUMBER)	33 (CATEGORY)

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards

UNITED STATES DEPARTMENT OF COMMERCE
C.R. Smith, Secretary
NATIONAL BUREAU OF STANDARDS • A. V. Astin, Director

NBS TECHNICAL NOTE 367

ISSUED MAY 1968

A BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES OF METHANE FROM 0 TO 300 °K

N 68 27412

L.A. HALL

Cryogenics Division
Institute for Basic Standards
National Bureau of Standards
Boulder, Colorado 80302

NBS Technical Notes are designed to supplement the Bureau's regular publications program. They provide a means for making available scientific data that are of transient or limited interest. Technical Notes may be listed or referred to in the open literature.

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402
Price 60 cents.

PRECEDING PAGE BLANK NOT FILMED

CONTENTS

PRECEDING PAGE BLANK NOT FILMED

Abstract 1

1. INTRODUCTION 1

2. FORMAT FOR LISTING CITATION AND DOCUMENT CONTENTS 3

3. INDEX OF PROPERTIES 4

4. BIBLIOGRAPHY OF REFERENCES 18

A BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES OF METHANE FROM 0 TO 300°K [1]

L. A. Hall

References together with an abbreviated abstract are presented for mechanical, thermodynamic, and transport properties *) of methane from 0 to 300°K published up to December 1967. A total of 660 articles have been indexed. Each article has been reviewed and coded with regard to properties studied, type of article (i.e., experimental, theoretical, etc.), and method of presentation of data. The temperature and pressure ranges for each property under consideration are also given. An index has been prepared according to property with four sub-categories: solid, liquid, gas up to 200°K, and gas above 200°K.

*) density, P-V-T data, compressibility factor, expansivity, compressibility, equation of state, vapor pressure, melting pressure, latent heats, fixed points, specific heat, velocity of sound, Joule-Thomson coefficients, entropy, enthalpy, internal energy, fugacity, Gibbs function, Helmholtz function, thermal conductivity, viscosity, Prandtl number, self-diffusion coefficient, surface tension, dielectric constant, refractive index

Key words: methane, low temperature, thermodynamic properties, transport properties, mechanical properties, equation of state, bibliography

1. INTRODUCTION

The Compilation Unit of the Cryogenic Data Center has in its mission the critical evaluation of quantitative information from the world's literature related to the thermophysical properties of materials at cryogenic temperatures. At the outset of the study of a particular material, copies of the documents concerned with the properties are obtained and reviewed. As the task of document accumulation continues, a concerted effort is made to complete a systematic and thorough literature search on the selected topic. This bibliography on the properties of methane is the first step in the current methodical organization of the

[1] This study was supported in part by the National Aeronautics and Space Administration, Contr. No. R-06-006-046.

literature on methane. Primarily, our search was for articles dealing with properties studied in the temperature range 0 to 300°K, however, articles containing higher temperatures were included as they came to our attention.

For methane, the collection of documents began over nine years ago in conjunction with the data compilation presented in the Compendium."[1] The initial literature search was conducted by the use of various abstracting journals, in particular Chemical Abstracts. Copies of the articles were obtained at that time and reviewed for useful data. From the time of the "Compendium's" publication to the present, the Compilation Unit of the Cryogenic Data Center has been actively acquiring all articles dealing with the thermophysical properties of methane at cryogenic temperatures. These articles were entered into our Storage and Retrieval System together with all the other cryogenically oriented documents that have come to our attention by a systematic scanning of the primary journals, and secondary publications such as Chemical Abstracts, Physics Abstracts, NASA STAR, Nuclear Science Abstracts, DDC TAB, and International Aerospace Abstracts. A computer search of the Storage and Retrieval System provided most of the references for this annotated bibliography. All pertinent documents from the references listed in this search were reviewed and coded. In addition, other articles, which were referenced in these documents, were also obtained, reviewed, and coded.

---

[1] "A Compendium of the Properties of Materials at Low Temperature (Phase I), Part I. Properties of Fluids," V. J. Johnson, editor, Wright Air Development Division Tech. Rept. 60-56 (1960), 560 pp., DDC AD 249 777.

2. FORMAT FOR LISTING CITATION AND DOCUMENT CONTENTS

The citations have been arranged alphabetically by first author and numbered. Only information from the article which concerns the properties of methane was noted in this bibliography. The temperature and pressure ranges were omitted on references to state points such as triple point, normal melting and boiling points, and critical point. In many cases the pressures were not stated in the article. This is most often the case for study of properties near atmospheric pressure that are essentially temperature-dependent only.

The information given for each citation includes and is ordered as follows:

1. author(s),
2. title (original language) and translated title, if original is in a language other than English,
3. reference (If the same article is published in more than one place, each reference is cited.),
4. properties studied for methane, state of substance, temperature and pressure ranges as available,
5. designation as to primary character of article,
   a. experimental
   b. theoretical
   c. compilation[1]
   d. correlation
   e. reference book[2]
6. form in which data are reported,
   a. tabular - tables (number of values)
   b. graphical
   c. equations
   d. apparatus, if described or illustrated

---

[1] In compilations, the bibliography number of the original article from which the data was obtained is listed if the source of the data is mentioned.

[2] The amount of data in reference books is not given.

3. INDEX OF PROPERTIES

The bibliography is indexed according to property with sub-indexes for the state of the substance; i.e., solid, liquid, gas up to 200°K, and gas above 200°K. The letters E, T, C, and R following each citation number refer to the type of data; i.e., E = experimental, T = theoretical, C = compilation, correlation, calculation, and R = review, discussion, reference work. A few reference books were coded by property only.

1. Density, P-V-T Data, Compressibility Factor 5
2. Equation of State, Virial Coefficients 6
3. Ideal Gas Property (rotational heat capacities) 7
4. Expansivity and Compressibility 7
5. Vapor Pressure 7
6. Melting Pressure 8
7. Latent Heats 8
8. Fixed Points (solid transitions, triple point, normal melting and boiling points, critical point) . . 9
9. Specific Heat 10
10. Velocity of Sound 11
11. Joule-Thomson Coefficients, Inversion Curve 11
12. Entropy, Enthalpy, Internal Energy, Fugacity, Gibbs Function, Helmholtz Function 11
13. Thermal Conductivity 13
14. Viscosity 14
15. Prandtl Number 15
16. Self-Diffusion Coefficient 15
17. Surface Tension 15
18. Dielectric Constant, Clausius-Mossotti Function . . . 15
19. Refractive Index 16
20. Lattice Characteristics (crystal structure, Debye temperature) 16
21. Corresponding States 16
22. Intermolecular Potential 17
23. Documents not appearing in the properties index 17

1. DENSITY, P-V-T DATA, COMPRESSIBILITY FACTOR

10 E	11 E	12 E	14 E	17 T	26 T	29 E	30 E	31 E	33 C
34 C	37 T	48 C	54 T	58 T	60 E	61 E	62 T	63 R	66 E
71 C	75 C	79 E	81 C	82 C	83 C	93 T	109 E	115 C	116 C
125 C	132 E	137 E	138 E	145 R	146 C	149 E	152 E	153 E	160 C
161 R	175 T	181 T	186 E	190 E	192 C	213 C	214 T	220 T	222 T
225 C	229 C	230 C	237 T	241 E	242 E	247 R	250 C	251 C	253 E
257 C	258 E	273 C	282 E	288 E	291 C	305 E	306 T	307 E	308 E
321 C	327 C	332 C	344 E	361 C	367 C	368 E	369 C	375 C	378 C
386 E	388 T	389 C	390 T	391 T	396 C	397 E	400 C	401 C	402 T
413 C	415 E	416 E	418 T	428 E	431 E	437 C	438 C	443 E	446 E
447 E	450 T	451 T	461 E	466 C	469 T	472 T	479 T	480 T	483 T
484 T	488 T	491 C	492 E	495 C	497 C	498 T	503 C	507 R	515 E
516 C	518 C	522 E	530 E	540 E	543 E	557 E	558 R	559 C	571 T
582 C	594 E	596 E	609 E	614 E	616 C	617 E	618 T	625 C	632 E
633 C	650 T	658 T							

SOLID

14 E	63 R	109 E	116 C	213 C	241 E	242 E	273 C	282 E	386 E
515 E	543 E	557 E	558 R	596 E					

LIQUID

14 E	17 T	26 T	33 C	48 C	54 T	66 E	83 C	109 E	116 C
125 C	132 E	175 T	192 C	213 C	220 T	229 C	230 C	237 T	247 R
257 C	273 C	291 C	375 C	397 E	400 C	418 T	428 E	446 E	447 E
461 E	469 T	483 T	484 T	488 T	503 C	515 E	594 E	614 E	616 C
618 T									

GAS (UP TO 200 DEGREES K)

26 T	33 C	54 T	58 T	62 T	75 C	81 C	83 C	116 C	125 C
145 R	149 E	160 C	161 R	213 C	247 R	251 C	253 E	258 E	273 C
291 C	327 C	375 C	391 T	400 C	401 C	413 C	431 E	437 C	443 E
451 T	461 E	469 T	522 E	559 C	571 T	582 C	594 E	616 C	617 E
625 C	650 T								

GAS (ABOVE 200 DEGREES K)

10 E	11 E	12 E	29 E	30 E	31 E	34 C	37 T	54 T	58 T
62 T	75 C	79 E	81 C	82 C	83 C	125 C	137 E	138 E	145 R
146 C	152 E	153 E	160 C	161 R	186 E	213 C	225 C	247 R	251 C
253 E	257 C	273 C	288 E	291 C	305 E	306 T	307 E	327 C	332 C
344 E	361 C	368 E	369 C	375 C	378 C	388 T	389 C	390 T	391 T
396 C	400 C	431 C	413 C	415 E	416 E	431 E	437 C	438 C	443 E
450 T	451 T	461 E	466 C	469 T	472 T	479 T	492 E	516 C	518 C
530 E	540 E	559 C	571 T	582 C	594 E	616 C	617 E	625 C	632 E
650 T	658 T								

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

1. DENSITY, P-V-T DATA, COMPRESSIBILITY FACTOR (CONT.)

SATURATED LIQUID

26 T	60 E	61 E	71 C	93 T	125 C	145 R	161 R	181 T	190 E
214 T	222 T	250 C	308 E	321 C	367 C	375 C	396 C	401 C	480 T
483 T	491 C	495 C	498 T	507 R	558 R	559 C	609 E	633 C	

SATURATED VAPOR

26 T	60 E	61 E	115 C	125 C	145 R	161 R	214 T	222 T	225 C
250 C	308 E	321 C	367 C	396 C	401 C	402 T	480 T	495 C	497 C
559 C	617 E	633 C							

2. EQUATION OF STATE, VIRIAL COEFFICIENTS

8 T	35 T	36 T	38 T	39 T	40 T	41 E	43 T	44 T	49 T
54 T	55 C	58 T	74 T	84 T	127 T	152 E	153 E	154 T	215 T
216 T	218 T	219 T	226 T	231 T	238 R	247 R	249 T	253 E	254 E
266 T	277 E	281 T	282 E	289 T	296 C	299 T	307 E	310 T	311 T
312 T	313 T	318 T	327 C	335 T	349 E	355 T	372 T	388 T	389 C
390 T	391 T	394 T	401 C	427 T	431 E	441 T	450 T	451 T	471 T
472 T	479 T	480 T	492 E	527 T	530 E	537 T	538 T	568 T	572 T
573 T	579 T	589 T	590 E	591 E	614 E	617 E	618 T	632 E	649 T
650 T	660 C								

LIQUID

39 T	43 T	54 T	231 T	247 R	249 T	277 E	394 T	480 T	589 T
614 E	618 T								

GAS (UP TO 200 DEGREES K)

35 T	36 T	40 T	43 T	54 T	58 T	74 T	84 T	127 T	218 T
226 T	238 R	247 R	253 E	254 E	266 T	277 E	281 T	282 E	289 T
296 C	299 T	310 T	311 T	318 T	327 C	335 T	355 T	372 T	389 C
401 C	427 T	431 E	441 T	451 T	471 T	480 T	537 T	568 T	572 T
579 T	589 T	590 E	591 E	617 E	649 T	650 T	660 C		

GAS (ABOVE 200 DEGREES K)

8 T	35 T	36 T	38 T	40 T	41 E	43 T	44 T	49 T	54 T
55 C	58 T	74 T	84 T	127 T	152 E	153 E	154 T	215 T	216 T
218 T	219 T	226 T	238 R	247 R	253 E	254 E	266 T	277 E	281 T
282 E	289 T	296 C	299 T	307 E	310 T	311 T	312 T	313 T	318 T
327 C	335 T	349 E	355 T	372 T	388 T	389 C	390 T	391 T	401 C
427 T	431 E	441 T	450 T	451 T	471 T	472 T	479 T	492 E	527 T
530 E	537 T	538 T	568 T	572 T	573 T	579 T	590 E	591 E	617 E
632 E	649 T	650 T	660 C						

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

3. IDEAL GAS PROPERTY (ROTATIONAL HEAT CAPACITY)

376 T 621 C 653 R

4. EXPANSIVITY AND COMPRESSIBILITY

50 E	210 E	214 T	231 T	282 E	352 E	384 R	387 E	488 T	507 R
555 E	556 E	609 E							

SOLID

50 E 210 E 387 E 555 E 556 E

LIQUID

231 T 488 T 507 R 609 E

GAS (UP TO 200 DEGREES K)

282 E

GAS (ABOVE 200 DEGREES K)

282 E 352 E 384 R

5. VAPOR PRESSURE

SOLID

21 E	22 C	186 E	233 T	236 E	252 C	261 C	263 E	271 E	273 C
285 E	292 C	342 E	364 C	397 E	433 C	445 E	490 C	503 C	558 R
570 C	593 E	653 R	659 C	660 C					

LIQUID

22 C	52 T	60 E	61 E	75 C	93 T	102 E	105 E	108 E	124 C
130 E	140 E	141 E	143 E	145 R	162 C	166 T	170 E	185 E	188 T
192 C	212 T	213 C	214 T	222 T	233 T	236 E	239 E	252 C	263 E
271 E	273 C	292 C	308 E	322 E	323 C	324 C			
396 C	400 C	401 C	414 T	419 R	433 C	445 E	463 T	469 T	484 T
490 C	493 C	498 T	503 C	507 R	547 C	553 T	563 E	564 E	570 C
587 R	588 C	594 E	613 E	614 E	617 E	618 T	628 E	633 C	652 E
656 C	657 C	659 C	660 C						

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

6. MELTING PRESSURE

103 R 109 E 186 E 210 E 273 C 356 T 558 R 569 E

7. LATENT HEATS

SOLID PHASE TRANSITION

104 E 184 E 273 C 342 E 458 C

HEAT OF SUBLIMATION

63 R 118 E 640 C 641 C 660 C

HEAT OF FUSION

63 R 104 E 118 E 171 E 273 C 292 C 294 C 342 E 367 C 458 C
490 C 503 C 504 C 558 R

HEAT OF VAPORIZATION

33 C 93 T 95 C 119 E 145 R 170 E 185 E 192 C 239 E 273 C
277 E 278 E 292 C 294 C 308 E 367 C 396 C 401 C 456 C 469 T
490 C 495 C 503 C 504 C 523 E 542 C 558 R 592 R 623 T 624 T
633 C 655 C 660 C

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

8. FIXED POINTS (SOLID TRANSITIONS, TRIPLE POINT, NORMAL MELTING AND BOILING POINTS, CRITICAL POINT)

SOLID TRANSITIONS

28 E	50 E	103 R	106 E	107 E	117 E	151 E	187 E	228 E	242 E
286 T	342 E	529 E	554 E	555 E	556 E	580 T	642 C		

TRIPLE POINT

21 E	22 C	32 T	103 R	107 E	109 E	116 C	118 E	129 E	145 R
176 T	191 T	192 C	323 C	342 E	370 E	384 R	396 C	397 E	411 E
447 E	490 C	503 C	504 C	558 R	593 E	618 T	633 C	657 C	660 C

NORMAL MELTING POINT

62 T	213 C	262 E	342 E	367 C	370 E	396 C

NORMAL BOILING POINT

22 C	48 C	80 T	116 C	145 R	161 R	176 T	192 C	213 C	257 C
262 E	290 C	308 E	323 C	350 E	384 R	411 E	445 E	446 E	447 E
490 C	498 T	503 C	504 C	558 R	618 T	633 C	660 C		

CRITICAL POINT

22 C	26 T	47 E	48 C	61 E	62 T	85 E	86 E	87 E	88 E
93 T	145 R	157 C	160 C	161 R	166 T	176 T	180 C	192 C	213 C
230 C	234 R	238 R	257 C	290 C	291 C	308 E	323 C	326 C	355 T
365 C	367 C	372 T	384 R	396 C	400 C	429 C	438 C	445 E	447 E
467 R	479 T	483 T	484 T	490 C	494 C	495 C	496 T	498 T	503 C
522 E	540 T	558 R	560 T	589 T	617 E	618 T	633 C	643 E	651 C
657 T	660 C								

E = experimental, T = theoretical, C = compilation, correlation, calculation, and R = review, discussion, reference work.

9. SPECIFIC HEAT

25 C	28 E	36 T	72 E	76 C	78 E	92 C	104 E	106 E	107 E
114 T	117 E	118 E	130 E	145 R	147 E	148 C	156 C	157 C	158 C
159 R	160 C	164 C	168 R	170 E	171 E	172 E	173 E	174 E	178 C
184 E	192 C	203 E	211 C	213 C	223 E	239 E	240 E	247 R	260 E
262 E	270 C	273 C	277 E	278 E	280 T	287 E	291 C	292 C	293 C
294 C	300 E	328 E	351 E	361 C	362 R	367 C	369 C	373 E	375 C
387 E	391 T	393 R	405 C	407 C	417 E	452 C	468 C	486 C	487 T
489 E	490 C	493 C	503 C	504 C	505 R	507 R	513 C	535 E	539 C
544 C	548 C	549 C	550 T	558 R	575 C	576 T	595 E	597 E	599 C
600 C	601 E	607 C	609 E	614 E	618 T	627 E	631 C	633 C	640 C
641 C	643 E	648 C	650 T	653 R	654 C				

SOLID

28 E	104 E	106 E	107 E	117 E	118 E	145 R	171 E	173 E	174 E
184 E	213 C	273 C	292 C	294 C	387 E	493 C	558 R	595 E	597 E
640 C	641 C	653 R							

LIQUID

104 E	107 E	118 E	130 E	171 E	192 C	247 R	273 C	277 E	278 E
291 C	292 C	294 C	375 C	507 R	607 C	609 E	614 E	618 T	654 C

GAS (UP TO 200 DEGREES K)

36 T	114 T	145 R	148 C	157 C	158 C	159 R	160 C	170 E	192 C
203 E	211 C	213 C	240 E	247 R	273 C	277 E	278 E	291 C	292 C
294 C	300 E	375 C	391 T	417 E	493 C	513 C	539 C	550 T	599 C
600 C	648 C	650 T							

GAS (ABOVE 200 DEGREES K)

36 T	72 E	76 C	78 E	114 T	145 R	147 E	148 C	156 C	157 C
158 C	159 R	160 C	164 C	168 R	170 E	172 E	178 C	192 C	203 E
211 C	213 C	223 E	240 E	247 R	260 E	262 E	270 C	273 C	277 E
278 E	280 T	287 E	291 C	293 C	294 C	300 E	328 E	351 E	361 C
367 C	369 C	373 E	391 T	393 R	417 E	452 C	468 C	489 E	493 C
513 C	535 E	539 C	544 C	550 T	576 T	599 C	601 E	627 E	631 C
648 C	650 T								

SATURATED LIQUID

145 R	159 R	213 C	239 E	273 C	486 C	493 C	507 R	607 C	609 E
633 C	643 E								

SATURATED VAPOR

633 C

IDEAL GAS

25 C	92 C	145 R	160 C	164 C	362 R	405 C	407 C	487 T	490 C
503 C	504 C	505 R	548 C	549 C	575 C				

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

10. VELOCITY OF SOUND

1 E	50 E	147 E	224 T	345 E	346 E	347 C	348 E	349 E	378 C
440 T	473 E	507 R	539 C	545 R	559 C	586 E	609 E	611 E	612 E
614 E	615 E	619 E	650 T						

SOLID

50 E 586 E

LIQUID

224 T	440 T	507 R	559 C	609 E	611 E	612 E	614 E	615 E	619 E

GAS (UP TO 200 DEGREES K)

473 E 539 C 559 C 650 T

GAS (ABOVE 200 DEGREES K)

1 E	147 E	345 E	346 E	347 C	348 E	349 E	378 C	473 E	539 C
545 R	559 C	650 T							

11. JOULE-THOMSON, INVERSION CURVE

5 E	23 C	77 C	78 E	145 R	154 T	156 C	182 C	195 C	217 C
218 T	281 T	329 T	330 T	331 T	372 T	427 T	462 C	605 C	614 C
630 R									

12. ENTROPY, ENTHALPY, INTERNAL ENERGY, FUGACITY, GIBBS FUNCTION, HELMHOLTZ FUNCTION

5 E	33 C	36 T	43 T	45 T	46 C	58 T	59 C	62 T	82 C
83 C	92 C	99 C	103 R	112 C	115 C	116 C	118 E	131 C	137 E
145 R	156 C	157 C	158 C	160 C	161 R	169 R	170 E	176 T	204 C
209 T	214 T	239 E	247 R	251 C	273 C	277 E	280 T	290 C	291 C
293 C	294 C	321 C	339 C	361 C	362 R	374 C	375 C	377 C	383 C
391 T	396 C	401 C	405 C	407 C	416 E	439 C	449 T	454 C	464 R
468 C	476 T	483 T	484 T	487 T	488 T	490 C	503 C	504 C	516 C
518 C	519 C	520 E	531 C	567 C	584 C	614 E	620 C	627 E	631 E
633 C	643 E	648 C	650 T	660 C					

SOLID

116 C 118 E 169 R 176 T 214 T

E = experimental, T = theoretical, C = compilation, correlation, calculation, and R = review, discussion, reference work.

12. ENTROPY, ENTHALPY, ETC. (CONT.)

LIQUID

33 C	43 T	45 T	59 C	83 C	116 C	131 C	145 R	158 C	161 R
176 T	214 T	239 E	247 R	273 C	277 E	290 C	291 C	321 C	374 C
375 C	396 C	401 C	449 T	464 R	483 T	484 T	488 T	531 C	614 E
633 C	643 E								

GAS (UP TO 200 DEGREES K)

33 C	36 T	43 T	45 T	46 C	58 T	59 C	62 T	83 C	103 R
112 C	115 C	116 C	118 E	145 R	157 C	158 C	160 C	161 R	170 E
239 E	247 R	251 C	273 C	277 E	290 C	291 C	321 C	375 C	391 T
396 C	401 C	449 T	454 C	464 R	476 T	520 E	531 C	633 C	643 E
648 C	650 T								

GAS (ABOVE 200 DEGREES K)

5 E	36 T	43 T	45 T	46 C	58 T	59 C	62 T	82 C	83 C
99 C	103 R	112 C	137 E	145 R	156 C	157 C	158 C	160 C	161 R
170 E	204 C	209 T	247 R	251 C	277 E	280 T	290 C	291 C	293 C
294 C	321 C	339 C	361 C	362 R	375 C	377 C	383 C	391 T	396 C
401 C	416 E	439 C	454 C	464 R	468 C	476 T	516 C	518 C	519 C
520 E	531 C	567 C	584 C	620 C	627 E	631 C	648 C	650 T	

IDEAL GAS

59 C	92 C	145 R	239 E	405 C	407 C	487 T	490 C	503 C	504 C
505 R	660 C								

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

13. THERMAL CONDUCTIVITY

19 T	20 T	24 E	53 T	54 T	68 E	72 E	73 T	84 T	90 E
96 C	97 E	98 E	101 T	110 T	112 C	114 T	123 C	133 E	135 C
167 E	168 R	183 E	193 C	194 C	196 C	197 C	199 E	202 E	208 E
211 C	213 C	232 R	244 T	247 R	255 T	256 T	264 E	272 C	273 C
275 E	283 E	295 T	300 E	301 E	302 E	303 E	304 R	309 C	351 E
357 R	358 E	359 E	360 E	366 T	369 C	381 C	385 E	395 T	399 C
409 E	422 E	423 C	424 C	425 E	436 C	448 T	455 C	493 C	525 T
528 E	533 E	535 E	536 E	546 E	558 R	561 C	565 T	566 E	575 C
585 C	604 E	606 E	622 E	629 E	634 R	637 E	638 E	646 E	647 E

SOLID

202 E	273 C	558 R

LIQUID

68 E	101 T	193 C	247 R	255 T	256 T	264 E	273 C	295 T	304 R
366 T	409 E	561 C	585 C	606 E	634 R				

GAS (UP TO 200 DEGREES K)

19 T	20 T	53 T	54 T	73 T	84 T	96 C	110 T	112 C	114 T
133 E	135 C	167 E	196 C	197 C	211 C	213 C	232 R	244 T	247 R
273 C	275 E	300 E	303 E	304 R	357 R	399 C	423 C	424 C	436 C
455 C	493 C	561 C	565 T	575 C	585 C	622 E	638 E		

GAS (ABOVE 200 DEGREES K)

19 T	20 T	24 E	53 T	54 T	72 E	73 T	84 T	90 E	96 C
97 E	98 E	112 C	114 T	123 C	133 E	135 C	167 E	168 R	183 E
193 C	194 C	196 C	197 C	199 E	208 E	211 C	213 C	232 R	244 T
247 R	272 C	273 C	275 E	283 E	300 E	301 E	302 E	303 E	304 R
309 C	351 E	357 R	358 E	359 E	360 E	369 C	381 C	385 E	395 T
399 C	422 E	423 C	424 C	425 E	436 C	448 T	455 C	493 C	525 T
528 E	533 E	535 E	536 E	546 E	561 C	565 T	566 E	575 C	585 C
604 E	629 E	637 E	646 E	647 E					

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

14. VISCOSITY

3 E	4 C	7 C	17 T	27 E	29 E	30 E	51 E	54 T	57 T
66 E	67 E	69 T	70 C	72 E	84 T	89 E	91 E	101 T	111 T
112 C	113 T	114 T	120 C	121 C	122 E	126 C	134 T	136 E	155 C
163 T	165 R	168 R	175 T	177 T	179 C	192 C	194 C	200 E	201 E
205 E	206 E	207 C	211 C	213 C	232 R	244 T	245 T	246 T	247 R
249 T	258 E	259 E	265 E	267 E	268 C	273 C	276 E	279 C	284 C
295 T	297 E	298 T	300 E	335 T	340 E	341 T	343 E	351 E	353 C
354 T	363 T	365 C	369 C	380 E	382 C	395 T	404 E	406 T	408 T
429 C	436 C	442 T	448 T	453 C	454 C	457 E	459 C	460 E	478 E
482 T	493 C	502 E	503 C	504 C	508 T	509 E	510 C	511 E	512 E
517 E	526 T	532 E	534 R	535 E	552 T	562 T	574 T	575 C	577 E
578 E	581 C	585 C	602 E	603 E	610 E	626 E	634 R	639 C	650 T

LIQUID

4 C	17 T	54 T	57 T	66 E	67 E	101 T	134 T	175 T	177 T
192 C	200 E	201 E	247 R	249 T	258 E	259 E	273 C	279 C	295 T
363 T	408 T	457 E	459 C	460 E	503 C	504 C	509 E	510 C	511 E
512 E	577 E	578 E	634 R						

GAS (UP TO 200 DEGREES K)

54 T	69 T	84 T	111 T	112 C	113 T	114 T	120 C	121 C	136 E
155 C	163 T	165 R	192 C	211 C	213 C	244 T	245 T	246 T	247 R
258 E	259 E	273 C	276 E	279 C	284 C	298 T	300 E	335 T	340 E
341 T	365 C	429 C	436 C	442 T	453 C	454 C	459 C	460 E	493 C
508 T	526 T	552 T	562 T	574 T	575 C	585 C	610 E	626 E	639 C
650 T									

GAS (ABOVE 200 DEGREES K)

3 E	7 C	27 E	29 E	30 E	51 E	54 T	69 T	70 C	72 E
84 T	89 E	91 E	111 T	112 C	113 T	114 T	120 C	121 C	122 E
126 C	136 E	155 C	163 T	165 R	168 R	179 C	192 C	194 C	205 E
206 E	207 C	211 C	213 C	232 R	244 T	245 T	246 T	247 R	258 E
259 E	265 E	267 E	268 C	273 C	276 E	279 C	297 E	298 T	300 E
335 T	341 T	343 E	351 E	353 C	354 T	365 C	369 C	380 E	382 C
395 T	404 E	406 T	429 C	436 C	442 T	448 T	453 C	454 C	459 C
460 E	478 E	493 C	502 E	508 T	517 E	526 T	532 E	534 R	535 E
552 T	562 T	574 T	575 C	581 C	585 C	602 E	603 E	610 E	626 E
639 C	650 T								

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

15. PRANDTL NUMBER

112 C 114 T 211 C 243 C 300 E

16. SELF-DIFFUSION COEFFICIENTS

9 C 18 C 136 E 198 E 244 T 247 R 395 T 398 T 430 E 435 E
442 T 514 E 526 T 598 E 634 R 644 E 645 E

17. SURFACE TENSION

56 E 94 T 176 T 177 T 189 E 192 C 214 T 221 C 227 T 247 R
273 C 371 T 403 T 481 T 495 C 503 C 551 E 583 C

18. DIELECTRIC CONSTANT, CLAUSIUS-MOSSOTTI FUNCTION

13 E 14 E 42 R 64 E 65 E 213 C 273 C 274 E 306 T 319 E
320 E 392 C 410 E 420 C 470 E 474 E 493 C 499 E 521 E 608 E
636 E

SOLID

13 E

LIQUID

13 E 14 E 213 C 273 C 392 C 410 E 493 C

GAS (UP TO 200 DEGREES K)

42 R 499 E

GAS (ABOVE 200 DEGREES K)

42 R 64 E 65 E 213 C 274 E 319 E 320 E 420 C 470 E 474 E
521 E 608 E 636 E

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

19. REFRACTIVE INDEX

2 E 235 T 319 E 325 E 501 E 635 E

LIQUID

2 E 235 T 325 E

GAS (UP TO 200 DEGREES K)

325 E

GAS (ABOVE 200 DEGREES K)

319 E 325 E 501 E 635 E

20. LATTICE CHARACTERISTICS (CRYSTAL STRUCTURE, LIQUID STRUCTURE, DEBYE TEMPERATURE)

15 E 16 E 128 E 150 E 191 T 249 T 269 T 282 E 314 C 315 T
316 T 317 T 411 E 412 E 426 E 432 C 434 T 465 E 483 T 484 T
506 T 524 E 529 E 642 C

21. CORRESPONDING STATES

58 T 62 T 80 T 101 T 110 T 111 T 112 C 113 T 114 T 126 C
139 T 182 C 214 T 216 T 233 T 237 T 247 R 250 C 295 T 365 C
372 T 375 C 438 C 455 C 469 T 475 T 476 T 495 C 496 T 497 C
498 T 508 T 571 T 639 C

SOLID

233 T

LIQUID

80 T 101 T 214 T 233 T 237 T 247 R 250 C 295 T 469 T 475 T
496 T 498 T

GAS (UP TO 200 DEGREES K)

58 T 62 T 80 T 110 T 113 T 139 T 182 C 214 T 247 R 250 C
365 C 372 T 469 T 475 T 497 C 571 T 639 C

GAS (ABOVE 200 DEGREES K)

58 T 62 T 80 T 113 T 139 T 247 R 365 C 372 T 438 C 469 T
475 T 571 T 639 C

E = experimental, T = theoretical, C = compilation, correlation, calculation, and
R = review, discussion, reference work.

22. INTERMOLECULAR POTENTIAL

6 T	57 T	84 T	100 T	136 E	152 E	154 T	180 C	191 T	227 T
247 R	248 T	249 T	313 T	314 C	315 T	316 T	317 T	318 T	333 T
334 T	335 T	336 T	337 T	338 T	341 T	355 T	379 T	395 T	406 T
421 T	430 E	442 T	448 T	471 T	485 T	527 T	530 E	538 T	540 T
560 T	568 T	579 T	639 C	649 T					

LIQUID

191 T 227 T 247 R

GAS (UP TO 200 DEGREES K)

57 T	84 T	100 T	136 E	247 R	248 T	318 T	333 T	334 T	335 T
336 T	337 T	338 T	341 T	355 T	421 T	471 T	568 T	579 T	639 C
649 T									

GAS (ABOVE 200 DEGREES K)

6 T	57 T	84 T	100 T	136 E	152 E	154 T	247 R	248 T	318 T
333 T	334 T	335 T	336 T	337 T	338 T	341 T	355 T	379 T	395 T
406 T	421 T	430 E	471 T	527 T	530 E	538 T	568 T	579 T	639 C
649 T									

23. DOCUMENTS NOT APPEARING IN THE PROPERTIES INDEX

142 E (INFRARED SPECTRA)
144 E (RAMAN SPECTRUM)
444 R (LIQUEFACTION OF GASES)
477 E (RAMAN SPECTRUM)
500 E (INFRARED SPECTRA)

E = experimental, T = theoretical, C = compilation, correlation, calculation, and R = review, discussion, reference work.

4. BIBLIOGRAPHY OF REFERENCES

(listed alphabetically by first author)

1 ABBEY,R.L. BARLOW,G.E.
THE VELOCITY OF SOUND IN GASES.
AUSTRALIAN J. SCI. RES. VOL. A1, 175-89 (JUN 1948)

VELOCITY OF SOUND (GAS) (290 DEGREES K AND 0.3 TO 76 CM HG)
EXPERIMENTAL - TABLE (12 VALUES), GRAPH, EQUATIONS

2 ABBISS,C.P. KNOBLER,C.M. TEAGUE,R.K. ET AL.
REFRACTIVE INDEX AND LORENTZ-LORENZ FUNCTION FOR SATURATED ARGON, METHANE, AND CARBON TETRAFLUORIDE.
J. CHEM. PHYS. VOL 42, NO. 12, 4145-48 (JUN 1965)

REFRACTIVE INDEX (SATURATED LIQUID) (91 TO 185 DEGREES K)
EXPERIMENTAL - TABLE (15 VALUES), GRAPH, EQUATION, APPARATUS

3 ADZUMI,H.
STUDIES ON THE FLOW OF GASEOUS MIXTURES THROUGH CAPILLARIES.
1. THE VISCOSITY OF BINARY GASEOUS MIXTURES.
BULL. CHEM. SOC. JAPAN VOL 12, NO. 5, 199-226 (1937)

VISCOSITY (GAS) (293 TO 373 DEGREES K)
EXPERIMENTAL - TABLE (9 VALUES)

4 AGAEV,N.A. GOLUBEV,I.F.
GENERALIZED VISCOSITY DATA OF SATURATED HYDROCARBONS AT DIFFERENT TEMPERATURES AND PRESSURES.
KHIM. I TEKHNOL. TOPLIV I MASEL VOL. 8, NO. 6, 28-30 (1963)
(IN RUSSIAN)

VISCOSITY (SAT. LIQUID)(10 TO 290 G MOL/LITER)
CALCULATED - GRAPH

5 AHLERT,R.C.
JOULE-THOMSON COEFFICIENTS AND EQUATIONS OF STATE FOR MIXTURES.
LEHIGH UNIV., BETHLEHEM, PA., PH. D. THESIS (1964) 245 PP
(AVAIL. UNIV. MICROFILMS, ANN ARBOR, MICH., ORDER NO. 64-11566)

JOULE-THOMSON COEFFICIENTS, ENTHALPY (GAS) (250 TO 350 DEGREES K AND 10 TO 170 ATM)
EXPERIMENTAL - TABLES (32 VALUES), GRAPH, APPARATUS

6 AHLERT,R.C. VOGL,W.
LENNARD-JONES PARAMETERS FOR METHANE.
A.I.CH.E. J. VOL. 12, NO. 5, 1025-6 (SEP 1966)

POTENTIAL FUNCTION (GAS) (200 TO 450 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (30 VALUES)

7 AKSARAILIAN,A. CERCEAU,O.
THEORETICAL CALCULATION OF THE VISCOSITY OF METHANE AND METHYL CHLORIDE.
ACTA CIENT. VENZOLANA VOL 16, NO. 2, 54-7 (1965)

VISCOSITY (GAS) (273 TO 523 DEGREES K)
CALCULATION - TABLE (10 VALUES), GRAPH

8 ALDER,B.J. SMITH,E.B.
HIGH TEMPERATURE CLASSICAL EQUATION OF STATE.
LAWRENCE RADIATION LAB., UNIV. OF CALIFORNIA, LIVERMORE, REPT.
NO. 5412-T (NOV 1958) CONTR. NO. W-7405-ENG-48, 35 PP

EQUATION OF STATE (GAS)
THEORETICAL - EQUATIONS

9 ALMASY,G. PALLAI,I.
CALCULATION OF THE DIFFUSION COEFFICIENTS FOR GASES.
ACTA. CHIM. ACAD. SCI. HUNG. VOL. 20, 419-31 (1959)

SELF DIFFUSION COEFFICIENT (GAS) (273 DEGREES K)
CALCULATED - TABLE (1 VALUE)

10 ALTMAN,ALBERT
ISOTHERMS OF METHANE AT PRESSURES FROM 34 ATMOSPHERES TO 258
ATMOSPHERES AND TEMPERATURES FROM 0 DEGREES C TO 150 DEGREES C.
MARYLAND UNIV., COLLEGE PARK, MASTER THESIS (1958) 51 PP

P-V-T DATA (GAS) (273 TO 423 DEGREES K AND 34 TO 258 ATM)
EXPERIMENTAL - TABLE (70 VALUES), EQUATIONS

11 AMAGAT,E.H.
MEMOIRE SUR LA COMPRESSIBILITE DES GAZ A DES PRESSIONS ELEVEES
REPORT ON THE COMPRESSIBILITY OF GASES AT ELEVATED PRESSURES
ANN. CHIM. ET PHYS. VOL. 19, 345-85 (1880)

COMPRESSIBILITY (PV-PRODUCT) (GAS) (291 TO 295 DEGREES K AND
32 TO 400 ATM)
EXPERIMENTAL - TABLE (13 VALUES), GRAPH

12 AMAGAT,E.H.
SUR LA COMPRESSIBILITE DES GAZ SOUS DE FORTES PRESSIONS
CONCERNING THE COMPRESSIBILITIES OF GASES UNDER HIGH PRESSURES
ANN. CHIM. ET PHYS. VOL. 22, 353-98 (1881)

COMPRESSIBILITY (PV-PRODUCT) (GAS) (288 TO 373 DEGREES K AND
30 TO 230 ATM)
EXPERIMENTAL - TABLE (72 VALUES), GRAPH, APPARATUS

13 AMEY,R.L.
THE DIELECTRIC BEHAVIOR OF SIMPLE NONPOLAR LIQUIDS.
BROWN UNIV., PROVIDENCE, R.I., PH.D. THESIS (1965) 85 PP.
ABSTR. IN DISSERTATION ABSTR. VOL 25, NO 8, PP 4422 (1965).
AVAIL. UNIVERSITY MICROFILMS, ANN ARBOR, MICH, ORDER NO. 65-2183.

DIELECTRIC CONSTANT, CLAUSIUS-MOSSOTTI FUNCTION (SOLID, LIQUID)
(80 TO 122 DEGREES K)
EXPERIMENTAL - GRAPHS

14 AMEY,R.L. COLE,R.H.
DIELECTRIC CONSTANTS OF LIQUEFIED NOBLE GASES AND METHANE.
J. CHEM. PHYS. VOL. 40, NO. 1, 146-48 (1964)

DIELECTRIC CONSTANT (SOLID, LIQUID) (80 TO 112 DEGREES K),
DENSITY (SOLID, LIQUID) (80 TO 112 DEGREES K)
EXPERIMENTAL - TABLE (4 VALUES)

15 ANDERSON,A. SAVOIE,R.
RAMAN SPECTRA OF CRYSTALLINE CH4 AND CD4.
PRINCETON UNIV., FRICK CHEM. LAB., N. J., REPT. NO. TR 19 (JUL 1965) CONTR. NO. NONR-1858-27, 22 PP

RAMAN SPECTRUM (SOLID) (12 AND 77 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES)

16 ANDERSON,A. SAVOIE,R.
RAMAN SPECTRA OF CRYSTALLINE CH4 AND CD4.
J. CHEM. PHYS. VOL 43, NO. 10, 3468-73 (NOV 1965)

CRYSTALLINE PROPERTY
EXPERIMENTAL - GRAPHS

17 ANDRADE,E.N.
THE VISCOSITY OF LIQUIDS.
PROC. PHYS. SOC. (LONDON) VOL. 52, 748-58 (1940)

VISCOSITY, DENSITY (LIQUID) (89 DEGREES K)
THEORETICAL - TABLE (2 VALUES), EQUATIONS

18 ANDRUSSOW,L.
UBER DIE DIFFUSION IN GASEN. III. BEZIEHUNG ZWISCHEN DER SELBST DIFFUSION UND DER ZAHIGKEIT. DIFFUSION IN EDELGASEN UND WASSERSTOFF. DIFFUSION IN GASES. III. RELATION BETWEEN SELF DIFFUSION AND VISCOSITY. DIFFUSION IN INERT GASES AND HYDROGEN.
Z. PHYSIK. CHEM. (LEIPZIG) VOL 199, 314-29 (1952)

SELF-DIFFUSION (GAS) (273 DEGREES K AND 1 ATM)
CALCULATION - EQUATIONS

19 ANDRUSSOW,L.
WARMELEITFAHIGKEIT, VISKOSITAT, UND DIFFUSION IN DER GASPHASE. VIII. BERECHNUNG DES TEMPERATURKOEFFIZIENTEN.
THERMAL CONDUCTIVITY, VISCOSITY, AND DIFFUSION IN THE GAS PHASE. VIII. CALCULATION OF TEMPERATURE COEFFICIENTS.
Z. ELEKTROCHEM. VOL. 57, 124-30 (1953)

THERMAL CONDUCTIVITY, VISCOSITY, DIFFUSION (GAS)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

20 ANDRUSSOW,L.
DIFFUSION, VISCOSITY AND CONDUCTIVITY OF GASES.
PROGRESS IN INTERN RESEARCH ON THERMODYNAMIC AND TRANSPORT PROPERTIES, ACADEMIC PRESS, NEW YORK (1962) PP 279-87

DIFFUSION, VISCOSITY, THERMAL CONDUCTIVITY (GAS)
THEORETICAL - EQUATIONS

21 ARMSTRONG,G.T. BRICKWEDDE,F.W. SCOTT,R.B.
VAPOR-PRESSURE OF THE DEUTERO-METHANES.
J. CHEM. PHYS. VOL. 21, 1297-98 (1953)

TRIPLE POINT (90.66 DEGREES K AND 87.60 MM HG)
EXPERIMENTAL - TABLE (2 VALUES)

22 ARMSTONG,G.T. BRICKWEDDE,F.G. SCOTT,R.B.
VAPOR PRESSURES OF THE METHANES.
J. RES. NATL. BUR. STANDARDS VOL. 55, NO. 1, 39-52 (JUL 1955)

VAPOR PRESSURE (SOLID, LIQUID)(51 TO 190 DEGREES K), TRIPLE POINT TEMPERATURE AND PRESSURE, CRITICAL TEMPERATURE AND PRESSURE, NORMAL BOILING POINT
CORRELATION - TABLE (150 VALUES), EQUATION, GRAPHS

23 AYBER,R.
GRAPHICAL AND ANALYTICAL REPRESENTATION OF THE JOULE-THOMSON EFFECT IN METHANE-HYDROGEN AND ETHYLENE-HYDROGEN MIXTURES.
BULL. IIR ANNEXE 1964-2, 135-43 PP (PRESENTED AT MEETING OF COMM. 2, TURIN, ITALY, SEPT 9-11, 1964)

JOULE-THOMSON COEFFICIENT (GAS) (235 TO 312 DEGREES K AND 1 TO 90 ATM)
CORRELATION - GRAPH, EQUATIONS

24 BAKER,C.E. BROKAW,R.S.
THERMAL CONDUCTIVITIES OF ORDINARY AND ISOTOPICALLY SUBSTITUTED POLAR GASES AND THEIR EQUIMOLAR MIXTURES.
J. CHEM. PHYS. VOL 43, NO. 10, 3519-28 (NOV 1965)

THERMAL CONDUCTIVITY (GAS) (300 TO 472 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES)

25 BARHO,W.
DIE MOLWARME DER FLUOR-CHLOR-DERIVATE DES METHANS IN ZUSTAND IDEALER GASE II.***THE SPECIFIC HEAT OF FLUORINE, CHLORINE DERIVATIVES OF METHANE IN THE IDEAL GAS STATE.
KALTETECHNIK VOL 17, NO. 11, 373 (NOV 1965) DKV ARBEITSBLATT 1-69

SPECIFIC HEAT (P= CONSTANT) (IDEAL GAS)(190 TO 1000 DEGREES K)
CORRELATION - GRAPH

26 BARILE,R.G. THODOS,G.
SATURATED VAPOR AND LIQUID DENSITIES OF PURE SUBSTANCES.
CAN. J. CHEM. ENG. VOL 43, NO. 3, 137-42 (1965)

DENSITY (SATURATED LIQUID AND VAPOR) (111 TO 191 DEGREES K), CRITICAL PRESSURE, TEMPERATURE AND VOLUME (191.1 DEGREES K)
THEORETICAL - EQUATIONS, GRAPHS, TABLE (COEFFICIENTS FOR EQUATIONS AND CRITICAL CONSTANTS)

27 BARON,J.D. ROOF,J.G. WELLS,F.W.
VISCOSITY OF NITROGEN, METHANE, ETHANE, AND PROPANE AT ELEVATED TEMPERATURE AND PRESSURE.
J. CHEM. ENG. DATA VOL 4, NO. 3, 283-8 (JUL 1959)

VISCOSITY (GAS) (334 TO 408 DEGREES K AND 7 TO 550 ATMOSPHERES)
EXPERIMENTAL - TABLE (40 VALUES), GRAPH, EQUATIONS, APPARATUS

28 BARTHOLOME,E. DRIKOS,G. EUCKEN,A.
DIE UMWANDLUNGEN VON FESTEM CD4 UND SEINER MISCHUNGEN MIT CH4.
***THE TRANSFORMATION OF SOLID CD4 AND ITS MIXTURE WITH CH4.
Z. PHYSIK. CHEM. VOL B39, 371-84 (1938)

SPECIFIC HEAT (P = CONSTANT) (SOLID) (12 TO 95 DEGREES K),
SOLID-SOLID PHASE TRANSITION (20 DEGREES K)
EXPERIMENTAL - TABLE (30 VALUES), APPARATUS

29 BARUA,A.K. AFZAL,M. FLYNN,G.P. ROSS,J.
VISCOSITY OF HYDROGEN, DEUTERIUM, METHANE, AND CARBON MONOXIDE
FROM -50 DEGREES TO 150 DEGREES C BELOW 200 ATMOSPHERES.
J. CHEM. PHYS. VOL. 41, NO. 2, 374-78 (JUL 1964)

VISCOSITY, DENSITY (GAS) (223 TO 423 DEGREES K AND
10 TO 175 ATM)
EXPERIMENTAL - TABLE (78 VALUES), GRAPH, EQUATION

30 BARUA,A.K. ROSS,J. AFZAL,M.
VISCOSITY OF HYDROGEN, DEUTERIUM, METHANE, AND CARBON MONOXIDE
FROM MINUS 50 DEGREES C TO 150 DEGREES C BELOW 200 ATMOSPHERES.
BROWN UNIV., METCALF CHEM. LABS., PROVIDENCE, R.I., TECH.
REPT. NO. BRN-10-P (JAN 1964) CONTR. NO. NONR 3623(00),
NR-098-038, 18 PP
NASA N64 15762 DDC 429 502

VISCOSITY, DENSITY (GAS) (222 TO 423 DEGREES K AND
10 TO 175 ATM)
EXPERIMENTAL - TABLE (78 VALUES), GRAPH, EQUATION

31 BAUME,G. PERROT,F.L.
DENSITE DU METHANE, POIDS ATOMIQUE DU CARBONE. DENSITY
OF METHANE, ATOMIC WEIGHT OF CARBON.
COMPT. REND. VOL 148, 39-42 (1909)

DENSITY (GAS)
EXPERIMENTAL

32 BAZAROV,I.P.
ON THE THEORY OF THE CRYSTAL-LIQUID PHASE TRANSITION.
ACTA CHIM. ACAD. SCI. HUNG. VOL 51, NO. 3, 255-60 (1967)

TRIPLE POINT
THEORETICAL - EQUATIONS, TABLE (1 VALUE)

33 BEALL,I.N.
PHYSICAL AND THERMODYNAMIC PROPERTIES OF METHANE AND ETHANE.
REFINER NAT. GASOLINE MFR VOL. 14, 232-34 (1935)

SPECIFIC VOLUME, DENSITY, ENTHALPY, ENTROPY (LIQUID, GAS)
(100 TO 191 DEGREES K AND 0.3 TO 46 ATM),
LATENT HEAT OF VAPORIZATION (100 TO 191 DEGREES K)
COMPILATION - TABLE (675 VALUES)
DATA SOURCES NOT GIVEN

34 BEATTIE, J.A.
AN EQUATION OF STATE FOR GASEOUS MIXTURES. I. APPLICATION TO MIXTURES OF METHANE AND NITROGEN.
J. AM. CHEM. SOC. VOL 51, 19-30 (JAN 1929)

P-V-T DATA (GAS) (273 TO 473 DEGREES K AND 34 TO 319 ATM)
CALCULATED - TABLE (40 VALUES), EQUATION

35 BEATTIE, J.A.
A NEW EQUATION OF STATE FOR FLUIDS. IV. AN EQUATION EXPRESSING THE VOLUME AS AN EXPLICIT FUNCTION OF THE PRESSURE AND TEMPERATURE
PROC. NATL. ACAD. SCI. U.S. VOL. 16, 14-9 (1930)

EQUATION OF STATE, VIRIAL COEFFICIENTS (GAS)
(191 TO 300 DEGREES K)
THEORETICAL - EQUATIONS, 3 COEFFICIENTS

36 BEATTIE, J.A.
THE COMPUTATION OF THE THERMODYNAMIC PROPERTIES OF REAL GASES AND MIXTURES OF REAL GASES.
CHEM. REV. VOL 44, 141-92 (1949)

EQUATION OF STATE, INTERNAL ENERGY, ENTHALPY, ENTROPY, FREE ENERGY (HELMHOLTZ), SPECIFIC HEATS (P=CONSTANT, V=CONSTANT)
(GAS)
THEORETICAL - EQUATIONS

37 BEATTIE, J.A. BRIDGEMAN, O.C.
A NEW EQUATION OF STATE FOR FLUIDS.
PROC. AM. ACAD. ARTS SCI. VOL. 63, 229-308 (1928)

P-V-T DATA (GAS) (273 TO 473 DEGREES K AND 0.5 TO 6 ATM)
THEORETICAL - EQUATION, TABLE (60 VALUES)

38 BEATTIE, J.A. BRIDGEMAN, O.C.
A NEW EQUATION OF STATE FOR FLUIDS. II. APPLICATION TO HELIUM, NEON, ARGON, HYDROGEN, OXYGEN, AIR, AND METHANE.
J. AM. CHEM. SOC. VOL. 50, 3133-38 (1928)

EQUATION OF STATE (GAS) (273 TO 473 DEGREES K AND UP TO 243 ATM)
THEORETICAL - EQUATION, TABLE OF COEFFICIENTS

39 BEATTIE, J.A. BRIDGEMAN, O.C.
EINE NEUE ZUSTANDSGLEICHUNG FÜR FLUSSIGKEITEN. V. WERTE DER KONSTANTEN FUR 14 GASE IN AMAGATSCHEN UND BERLINER EINHEITEN.***
A NEW STATE EQUATION FOR FLUIDS. V. CONSTANTS FOR 14 GASES IN AMAGATS AND PRUSSIAN UNITS.
Z. PHYSIK VOL 62, 95-101 (1930)

EQUATION OF STATE (LIQUID)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

40 BEATTIE, J.A. STOCKMAYER, W.H.
EQUATIONS OF STATE.
PROC. PHYS. SOC. (LONDON) VOL. 7, 195-229 (1940)

EQUATION OF STATE (GAS)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

41 BEATTIE,J.A. STOCKMAYER,W.H.
THE SECOND VIRIAL COEFFICIENT FOR GAS MIXTURES.
J. CHEM. PHYS. VOL. 10, 473 (1942)

SECOND VIRIAL COEFFICIENT (GAS)(423 TO 573 DEGREES K)
EXPERIMENTAL - TABLE (7 VALUES)

42 BEAUME,R. NACASCH,R. COULON,R.
CONSTANTES DIELECTRIQUES ET INDICES DE REFRACTION DES GAZ EN FONCTION DE LA PRESSION.***DIELECTRIC CONSTANTS AND REFRACTIVE INDICES OF GASES AS A FUNCTION OF PRESSURES.
J. PHYS. (PARIS) VOL 26, NO. 10, 597-608 (OCT 1965)

DIELECTRIC CONSTANT, REFRACTIVE INDEX (GAS)
REVIEW - EQUATIONS, APPARATUS

43 BENEDICT,M. WEBB,G.B. RUBIN,L.C.
AN EMPIRICAL EQUATION FOR THERMODYNAMIC PROPERTIES OF LIGHT HYDROCARBONS AND THEIR MIXTURES I. METHANE, ETHANE, PROPANE, AND N-BUTANE.
J. CHEM. PHYS. VOL. 8, 334-45 (1940)

EQUATION OF STATE, FUGACITY, ENTHALPY (LIQUID, GAS) (134 TO 473 DEGREES K)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

44 BENEDICT,M. WEBB,G.B. RUBIN,L.C.
AN EMPIRICAL EQUATION FOR THERMODYNAMIC PROPERTIES OF LIGHT HYDROCARBONS AND THEIR MIXTURES II. MIXTURES OF METHANE, ETHANE, PROPANE AND N-BUTANE.
J. CHEM. PHYS. VOL. 10, 747-58 (1942)

EQUATION OF STATE (GAS) (348 TO 573 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (6 VALUES)

45 BENEDICT,M. WEBB,G.B. RUBIN,L.C.
AN EMPIRICAL EQUATION FOR THERMODYNAMIC PROPERTIES OF LIGHT HYDROCARBONS AND THEIR MIXTURES. FUGACITIES AND LIQUID - VAPOR EQUILIBRIA.
CHEM. ENG. PROGR. VOL. 47, 449-54 (1951)

FUGACITY (LIQUID, GAS)
THEORETICAL - EQUATIONS

46 BENEDICT,M. WEBB,G.B. RUBIN,L.C. FRIEND,L.
AN EMPIRICAL EQUATION FOR THERMODYNAMIC PROPERTIES OF LIGHT HYDROCARBONS AND THEIR MIXTURES. REDUCTION OF EQUATION TO CHARTS FOR PREDICTION OF LIQUID-VAPOR EQUILIBRIA.
CHEM. ENG. PROGR. VOL. 47, NO. 12, 609-20 (1951)

FUGACITY COEFFICIENT (GAS) (123 TO 353 DEGREES K AND 0 TO 245 ATM)
CALCULATION - TABLE (200 VALUES), GRAPH

47 BENNEWITZ,K. ANDREEWA,N.
UNTERSUCHUNGEN IM KRITISCHEN GEBIET. III. ENERGIEMESSUNGEN MITTELS JOULE-EFFEKTES. INVESTIGATIONS IN THE CRITICAL REGION. III. ENERGY MEASUREMENTS BY MEANS OF THE JOULE EFFECT.
Z. PHYSIK. CHEM. VOL. 142A, 37-66 (1929)

CRITICAL TEMPERATURE, PRESSURE, AND DENSITY
EXPERIMENTAL - TABLE (3 VALUES)

48 BENSON,S.W.
CRITICAL DENSITIES AND RELATED PROPERTIES OF LIQUIDS.
J. PHYS. AND COLLOID CHEM. VOL 52, 1060-74 (1948)

CRITICAL DENSITY, CRITICAL TEMPERATURE, CRITICAL PRESSURE, NORMAL BOILING TEMPERATURE, DENSITY (LIQUID) (111.6 DEGREES K)
CALCULATION - EQUATIONS, TABLE (5 VALUES)

49 BERGEON,R.
CONTRIBUTION A L ETUDE DES FORCES INTERMOLECULAIRES EN LIAISON AVEC L EQUATION D ETAT DES GAZ ET LES PERTURBATIONS DES RAIES SPECTRALES SOUS HAUTE PRESSION. CONTRIBUTION TO THE STUDY OF INTERMOLECULAR FORCES IN CONNECTION WITH THE EQUATION OF STATE OF THE GAS AND THE PERTURBATION OF SPECTRAL RAYS UNDER HIGH PRESSURE.
J. RECH. CENTRE NATL. RECH. SCI. LAB. BELLEVUE (PARIS) VOL 9, NO. 44, 171-207 (1958)

SECOND AND THIRD VIRIAL COEFFICIENT (GAS) (203 TO 473 DEGREES K)
THEORETICAL - EQUATION, TABLE (18 VALUES), GRAPH

50 BEZUGLYI,P.A. BURMA,N.G. MINYAFAEV,R.KH.
ELASTIC CONSTANTS OF POLYCRYSTALLINE METHANE IN THE TEMPERATURE RANGE 14.4-77 DEGREES K.
SOVIET PHYS.-SOLID STATE VOL. 8, NO. 3, 596-600 (SEP 1966).
TRANSL. OF FIZ. TVERD. TELA VOL. 8, NO. 3, 744-9 (MAR 1966).

ADIABATIC COMPRESSIBILITY, VELOCITY OF SOUND (SOLID) (14 TO 80 DEGREES K), SOLID-SOLID PHASE TRANSITION
EXPERIMENTAL - TABLE (13 VALUES), EQUATIONS, GRAPH

51 BICHER,L.B. KATZ,D.L.
VISCOSITIES OF THE METHANE-PROPANE SYSTEM.
IND. ENG. CHEM. VOL. 35, NO. 7, 754-61 (1943)

VISCOSITY (GAS) (298 TO 498 DEGREES K AND 14.7 TO 5000 PSIA)
EXPERIMENTAL - TABLE (45 VALUES), GRAPH

52 BINGHAM,E.C.
VAPOR-PRESSURE AND CHEMICAL COMPOSITION.
J. AM. CHEM. SOC. VOL 28, 717-23 (1906)

VAPOR PRESSURE (LIQUID)
THEORETICAL - EQUATIONS

53 BIRD,R.B.
BEREKENINGSMETHODEN VOOR HET WARMETGELEIDINGSVERMOGEN VAN GASSEN EN VLOEISTOFFEN.***METHOD OF CALCULATION OF THERMAL CONDUCTIVITY OF GASES AND FLUIDS.
INGENIEUR (UTRECHT) VOL 70, NO. 35, 57-62 (AUG 1958)

THERMAL CONDUCTIVITY (GAS)
THEORETICAL - EQUATIONS

54 BIRD,R.B. HIRSCHFELDER,J.O. CURTISS,C.F.
SURVEY OF THE EQUATION OF STATE AND TRANSPORT PROPERTIES OF GASES AND LIQUIDS.
WISCONSIN UNIV., MADISON, REPT. NO. CM-758 (NOV 1952) CONTR. NO. NORD 9938, 73 PP
DDC AD 5522

EQUATION OF STATE, COMPRESSIBILITY FACTOR, SECOND VIRIAL COEFFICIENT, VISCOSITY, THERMAL CONDUCTIVITY, DIFFUSION (LIQUID, GAS)
THEORETICAL - EQUATIONS

55 BIRD,R.B. SPOTZ,E.L. HIRSCHFELDER,J.O.
THE THIRD VIRIAL COEFFICIENT FOR NON-POLAR GASES
J. CHEM. PHYS. VOL. 18 NO. 10, 1395-1402 (OCT 1950)

SECOND AND THIRD VIRIAL COEFFICIENTS (GAS) (273 TO 423 DEGREES K)
CALCULATION - TABLE (14 VALUES)

56 BLAGOI,Y.P.
SURFACE TENSION OF SOLUTIONS OF LIQUIFIED GASES N2-AR, AR-CH4, N2-CH4.
UKR. FIZ. ZH. VOL 5, 109-14 (1960) (IN RUSSIAN)

SURFACE TENSION (LIQUID) (91 TO 111 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES), GRAPHS, EQUATIONS, APPARATUS

57 BLOMGREN,G.E.
PARTITION FUNCTIONS FOR NORMAL LIQUIDS AND MOLTEN SALTS.
ANN. N. Y. ACAD. SCI. VOL. 79, ART. 11, 781-89 (1960)

VISCOSITY (LIQUID) (90 TO 180 DEGREES K), PARTITION FUNCTION (GAS)
THEORETICAL - EQUATIONS, TABLE(COEFFICIENT FOR EQUATION), GRAPH

58 BLOOMER,O.T.
THE PRESSURE-VOLUME-TEMPERATURE RELATIONSHIPS AND THERMODYNAMIC PROPERTIES OF GASES.
ILLINOIS INST. OF TECH., CHICAGO, PH.D. THESIS (FEB 1953) 172 PP

EQUATION OF STATE, ENTROPY, ENTHALPY, FREE ENERGY (HELMHOLTZ), P-V-T DATA (GAS) (152 TO 532 DEGREES K AND 2 TO 20 MOLES/LITER), CORRESPONDING STATES THEORY
THEORETICAL - EQUATIONS, TABLE (60 VALUES), GRAPHS

59 BLOOMER,O.T. EAKIN,B.E. ELLINGTON,R.T. GAMI,D.C.
THERMODYNAMIC PROPERTIES OF METHANE-NITROGEN MIXTURES.
INST. GAS TECHNOL. RESEARCH BULL. NO 21 (1955)

ENTROPY, ENTHALPY (LIQUID, GAS) (108 TO 633 DEGREES K),
ENTROPY, ENTHALPY (IDEAL GAS) (100 TO 366 DEGREES K)
CORRELATION - EQUATIONS, GRAPHS, TABLE (40 VALUES)

60 BLOOMER, O.T. PARENT, J.D.
PHYSICAL-CHEMICAL PROPERTIES OF METHANE-NITROGEN MIXTURES.
INSTITUTE OF GAS TECHNOLOGY, CHICAGO, ILL., RESEARCH BULL. 17
(APR 1952) 36 PP

VAPOR PRESSURE (LIQUID)(108 TO 191 DEGREES K), SATURATION
DENSITY (LIQUID,GAS)(125 TO 191 DEGREES K)
EXPERIMENTAL - TABLES (35 VALUES), GRAPH

61 BLOOMER,O.T. PARENT,J.D.
LIQUID-VAPOR PHASE BEHAVIOR OF THE METHANE-NITROGEN SYSTEM.
CHEM. ENG. PROGR. VOL. 49, NO. 6, 11-24 (1953)

VAPOR PRESSURE (LIQUID) (105 TO 190 DEGREES K), SATURATION
DENSITIES (LIQUID, VAPOR) (124 TO 190 DEGREES K),
CRITICAL TEMPERATURE, CRITICAL PRESSURE
EXPERIMENTAL - TABLES (45 VALUES), GRAPHS, APPARATUS

62 BLOOMER,O.T. PECK,R.E.
MODIFIED LAW OF CORRESPONDING STATES FOR GASES.
A. I. CH. E. J. VOL 6, 240-5 (1960)

COMPRESSIBILITY FACTOR, CORRESPONDING STATES THEORY, FUGACITY,
ENTROPY (GAS) (130 TO 570 DEGREES K AND 45 TO 450 ATM),
CRITICAL TEMPERATURE, PRESSURE, DENSITY, NORMAL BOILING
POINT
THEORETICAL - GRAPHS, TABLE (4 VALUES), EQUATIONS

63 BOATO,G.
THE SOLIDIFIED INERT GASES.
CRYOGENICS VOL. 4, NO. 2, 65-75 (1964)

HEAT OF FUSION, HEAT OF SUBLIMATION, SPECIFIC VOLUME (SOLID),
VOLUME CHANGE IN MELTING, ENTROPY CHANGE IN MELTING
(90.7 DEGREES K)
REVIEW - TABLE (6 VALUES)

64 BOLTZMANN,L.
EXPERIMENTELLE BESTIMMUNG DER DIELEKTRICITATSCONSTANTE EINIGER
GASE. EXPERIMENTAL DETERMINATION OF THE DIELECTRIC CONSTANT OF
SOME GASES.
SITZ. AKAD. WISS. WIEN MATH.-NATURW. KL. VOL. 69, 795-813 (1874)

DIELECTRIC CONSTANT (GAS) (289 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE)

65 BOLTZMANN,L.
EXPERIMENTELLE BESTIMMUNG DER DIELEKTRICITATSCONSTANTE EINIGER GASE. EXPERIMENTAL DETERMINATION OF THE DIELECTRIC CONSTANT OF SEVERAL GASES.
ANN. PHYSIK. CHEM. VOL. 155, 403-22 (1875)

DIELECTRIC CONSTANT (GAS) (273 DEGREES K AND 1 ATM)
EXPERIMENTAL - TABLE (1 VALUE)

66 BOON,J.P. LEGROS,J.C. THOMAES,G.
ON THE PRINCIPLE OF CORRESPONDING STATES FOR THE VISCOSITY OF SIMPLE LIQUIDS.
PHYSICA VOL 33, NO. 3, 547-57 (1967)

VISCOSITY, DENSITY (SAT. LIQUID)(91 TO 114 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES), EQUATIONS, GRAPH

67 BOON,J.P. THOMAES,G.
THE VISCOSITY OF LIQUEFIED GASES.
PHYSICA VOL. 29, NO. 3, 208-14 (MAR 1963)

VISCOSITY (LIQUID) (91 TO 114 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES), GRAPH, EQUATION

68 BOROVIK,E.S. MAMVEEV,A. PANINA,YE.
THERMAL CONDUCTIVITY OF LIQUID NITROGEN, CARBON MONOXIDE, METHANE, AND ETHYLENE.
ZHUR. TEKH. FIZ. VOL. 10, NO. 12, 988-998 (1940) (IN RUSSIAN)
(TRANS. AVAIL. OTS NO. 61-18111)

THERMAL CONDUCTIVITY (LIQUID) (103 TO 173 DEGREES K)
EXPERIMENTAL - TABLE (4 VALUES), GRAPH, EQUATION, APPARATUS

69 BRANCKER,A.V.
THE VISCOSITY-TEMPERATURE FUNCTION OF GASES.
IND. CHEMIST VOL. 30, 307-12 (1954)

VISCOSITY (GAS) (100 TO 2600 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (15 VALUES)

70 BREBACH,W.J. THODOS,G.
VISCOSITY-REDUCED STATE CORRELATION FOR DIATOMIC GASES.
IND. ENG. CHEM. VOL. 50, NO. 7, 1095-1100 (1958)

VISCOSITY (GAS) (298 TO 498 DEGREES K AND 1 TO 340 ATM)
CORRELATION - EQUATIONS

71 BREBACH,W.J. THODOS,G.
DENSITIES OF THE LIQUID AND DENSE PHASE REGIONS
IND. ENG. CHEM. VOL. 3, NO. 2, 338-41 (1958)

EXPANSION FACTOR, DENSITY (SAT. LIQUID) (90 TO 190 DEGREES K)
CORRELATION - EQUATIONS

72 BROKAW,R.S. O NEAL,C.JR.
ROTATIONAL RELAXATION AND THE RELATION BETWEEN THERMAL CONDUCTIVITY AND VISCOSITY FOR SOME NONPOLAR POLYATOMIC GASES.
NINTH INTERNATIONAL SYMPOSIUM ON COMBUSTION, 1962, 725-31,
NASA N63 19389
ACADEMIC PRESS, NEW YORK (1963)

THERMAL CONDUCTIVITY, VISCOSITY, SPECIFIC HEAT (V=CONSTANT)
(GAS) (279 TO 284 DEGREES K)
EXPERIMENTAL - TABLE (6 VALUES), EQUATION

73 BROMLEY,L.A.
THERMAL CONDUCTIVITY OF GASES AT MODERATE PRESSURES
CALIF. UNIV. RADIATION LAB., BERKELEY, REPT. NO. 1852, 1-37 (JUN 1952)

THERMAL CONDUCTIVITY (GAS) (90 TO 380 DEGREES K)
THEORETICAL - EQUATION, TABLE (12 VALUES)

74 BROUGH,H.W. SCHLINGER,W.G. SAGE,B.H.
EVALUATION OF EQUATIONS OF STATE CONSTANTS WITH DIGITAL COMPUTERS.
IND. ENG. CHEM. VOL 43, 2442-46 (1951)

EQUATION OF STATE (GAS)(311 TO 507 DEGREES K AND 1500 TO 10,000 PSI)
-EVALUATION OF BENEDICT EQUATION OF STATE OVER THE ABOVE TEMPERATURE AND PRESSURE RANGES-

75 BROWN,G.G. SOUDERS,M. SMITH,R.L.
FUNDAMENTAL DESIGN OF HIGH PRESSURE EQUIPMENT INVOLVING PARAFFIN HYDROCARBONS. I. PRESSURE-VOLUME-TEMPERATURE RELATIONS OF PARAFFIN HYDROCARBONS.
IND. ENG. CHEM. VOL. 24, 513-15 (MAY 1932)

P-V-T DATA (GAS) (115 TO 497 DEGREES K AND 1 TO 137 ATM),
VAPOR PRESSURE (LIQUID) (115 TO 191 DEGREES K)
CORRELATION - GRAPH, EQUATION

76 BRYANT,W.M.D.
EMPIRICAL MOLECULAR HEAT EQUATIONS FROM SPECTROSCOPIC DATA.
IND. ENG. CHEM. VOL 25, 820-3 (1933)

SPECIFIC HEAT (P = CONSTANT) (GAS) (300 TO 1800 DEGREES K)
CALCULATED - EQUATIONS, GRAPHS

77 BUDAGIAN,E.A.
NOMOGRAMS FOR DETERMINING THE INTEGRAL JOULE-THOMSON EFFECT OF METHANE.
GAZ. PROM. VOL 10, NO. 2, 7-10 (1965) (IN RUSSIAN)

JOULE-THOMSON EFFECT (203 TO 393 DEGREES K AND 0 TO 300 ATM)
CALCULATED - GRAPHS

78 BUDENHOLZER,R.A. SAGE,B.H. LACEY,W.N.
PHASE EQUILIBRIA IN HYDROCARBON SYSTEMS. JOULE-THOMSON COEFFICIENT OF METHANE.
IND. ENG. CHEM. VOL 31, 369-74 (1939)

JOULE-THOMSON COEFFICIENT, SPECIFIC HEAT (P = CONSTANT) (GAS) (293 TO 373 DEGREES K AND 0 TO 1500 PSIA)
EXPERIMENTAL - TABLE (84 VALUES), GRAPHS, EQUATIONS, APPARATUS

79 BURRELL,G.A. JONES,G.W.
PRESSURE-VOLUME DEVIATION OF METHANE, ETHANE, PROPANE AND CARBON DIOXIDE AT ELEVATED PRESSURES.
BUREAU OF MINES, PITTSBURGH, PA., REPT. OF INVESTIGATIONS NO. 2276 (AUG 1921) 6 PP

P-V-T DATA (GAS) (288 DEGREES K AND 880 TO 31590 MM HG)
EXPERIMENTAL - TABLE (90 VALUES)

80 BYK,A.
DAS THEOREM DER UBEREINSTIMMENDEN ZUSTANDE UND DIE QUANTENTHEORIE DER GASE UND FLUSSIGKEITEN. THE THEORY OF CORRESPONDING STATES AND THE QUANTUM THEORY FOR GASES AND LIQUIDS.
ANN. PHYSIK VOL. 66, NO. 19, 157-205 (1921)

THEORY OF CORRESPONDING STATES (GAS, LIQUID), NORMAL BOILING POINT
THEORETICAL - EQUATIONS, TABLE (COEFFICIENTS FOR EQUATIONS)

81 BYRNE,R. THODOS,G.
THE PVT-BEHAVIOR OF DIATOMIC SUBSTANCES IN THEIR GASEOUS AND LIQUID STATES.
AM. INST. CHEM. ENGRS. J. VOL. 7, NO. 2, 185-89 (1961)

DENSITY (GAS), CRITICAL COMPRESSIBILITY FACTOR (191 DEGREES K)
CORRELATION - TABLE (1 VALUE), GRAPH

82 CANJAR,L.N.
P-V-T AND RELATED PROPERTIES FOR METHANE AND ETHANE.
CHEM. ENG. DATA SER. VOL 3, NO. 2, 185-92 (1958)

COMPRESSIBILITY FACTOR, ENTHALPY, ENTROPY, FREE ENERGY (GAS) (344 TO 511 DEGREES K)
CORRELATION - EQUATION, GRAPHS

83 CANJAR,L.N. TEJADA,V.M. MANNING,F.S.
THERMO PROPERTIES OF HYDROCARBONS. PART 2. THERMODYNAMIC PROPERTIES OF METHANE.
PETROL. REFINER VOL. 41, NO. 9, 253-56 (SEPT 1962)

ENTROPY, ENTHALPY, SPECIFIC VOLUME (LIQUID, GAS) (113 TO 367 DEGREES K AND 10 TO 10000 PSIA)
CORRELATION - GRAPH

84 CARBO,R.
ESTIMACION DE LAS PROPIEDADES DE LOS GASES. I. CALCULO DE LA ECUACION DE ESTADO Y DE LOS COEFICIENTES DE TRANSPORTE PARA GASES PUROS A BAJA DENSIDAD.**ESTIMATION OF THE PROPERTIES OF THE GASES. I. CALCULATION OF THE EQUATION OF STATE AND THE TRANSPORT COEFFICIENTS OF PURE GASES AT LOW DENSITIES.
AFINIDAD VOL 23, NO. 245, 405-8 (SEP-OCT 1966)

EQUATION OF STATE, VISCOSITY, THERMAL CONDUCTIVITY, DIFFUSION (GAS), POTENTIAL FUNCTION
THEORETICAL - EQUATIONS

85 CARDOSO,E.
DETERMINATION EXPERIMENTALE DES ELEMENTS CRITIQUES D OXYGENE, DE L AZOTE, DE L OXYDE DE CARBONE ET DU METHANE. EXPERIMENTAL DETERMINATION OF THE CRITICAL CONSTANTS OF OXYGEN, NITROGEN, CARBON MONOXIDE AND METHANE.
ARCH. SCI. PHYS. ET NAT. VOL. 39, 400-02 (1915)

CRITICAL TEMPERATURE AND PRESSURE
EXPERIMENTAL - TABLE (2 VALUES)

86 CARDOSO,E.
CONTRIBUTION A L ETUDE DU POINT CRITIQUE DE QUELQUES GAZ DIFFICILEMENT LIQUEFIABLES. AZOTE, OXYDE DE CARBONE, OXYGENE, METHANE. CONTRIBUTION TO THE STUDY OF THE CRITICAL POINT OF SOME DIFFICULT TO LIQUEFY GASES.
J. CHIM. PHYS. VOL. 13, 312-50 (1915)

CRITICAL TEMPERATURE, PRESSURE AND DENSITY
EXPERIMENTAL - TABLE (3 VALUES), APPARATUS

87 CARDOSO,E.
DETERMINATION DES ELEMENTS CRITIQUES DU METHANE. THE CRITICAL CONSTANTS OF METHANE.
ARCH. SCI. PHYS. ET NAT. VOL. 36, 97-100 (1913)

CRITICAL TEMPERATURE, CRITICAL PRESSURE
EXPERIMENTAL - 2 VALUES

88 CARDOSO,E.
DENSITES DES PHASES COEXISTANTES DU METHANE ET DE L*OXYDE DE CARBONE. THE DENSITIES OF COEXISTANT PHASES OF METHANE AND CARBON MONOXIDE.
ARCH. SCI. PHYS. ET NAT. VOL. 39, 403-04 (1915)

CRITICAL DENSITY
EXPERIMENTAL - TABLE (1 VALUE)

89 CARMICHAEL,L.T. BERRY,V. SAGE,B.H.
VISCOSITY OF HYDROCARBONS, METHANE.
J. CHEM. ENG. DATA VOL 10, NO. 1, 57-61 (JAN 1965)

VISCOSITY (GAS) (278 TO 478 DEGREES K AND 1 TO 34 ATM)
EXPERIMENTAL - TABLES (150 VALUES), GRAPHS, EQUATIONS

90 CARMICHAEL,L.T. REAMER,H.H. SAGE,B.H.
THERMAL CONDUCTIVITY OF FLUIDS. METHANE.
J. CHEM. ENG. DATA VOL 11, NO. 1, 52-57 (JAN 1966)

THERMAL CONDUCTIVITY (GAS) (277 TO 443 DEGREES K AND 1 TO 340 ATM)
EXPERIMENTAL - TABLE (80 VALUES), GRAPH, EQUATIONS

91 CARR,N.L.
VISCOSITIES OF NATURAL GAS COMPONENTS AND MIXTURES.
INST. GAS TECHNOL. RES. BULL. NO. 23 (JUN 1953) 59 PP

VISCOSITY (GAS) (297 TO 378 DEGREES K AND 1 TO 53 ATM)
EXPERIMENTAL - TABLE (30 VALUES), GRAPH, APPARATUS

92 CERNY,C. ERDOS,E.
DIE THERMODYNAMISCHEN FUNKTIONEN DES METHAN, DES SILAN UND IHRER HALOGENDERIVATE. THERMODYNAMIC FUNCTIONS OF METHANE, SILANE, AND THEIR HALOGEN DERIVATIVES.
COLLECTION CZECH. CHEM. COMMUN. VOL 19, 646-52 (1954)

SPECIFIC HEAT, ENTHALPY, ENTROPY, FREE ENERGY (GIBBS FUNCTION) (IDEAL GAS) (100 TO 1000 DEGREES K)
CALCULATED - TABLE (40 VALUES)

93 CHANG,S. PAK,H. ET AL.
MODIFIED THEORY OF LIQUID STRUCTURE.
DAEHAN HWAHAK HWOEJEE VOL 8, NO. 1, 33-38 (1964)

MOLAR VOLUME (SAT. LIQUID), VAPOR PRESSURE (LIQUID) (90 TO 123 DEGREES K), HEAT OF VAPORIZATION (90 AND 111 DEGREES K), CRITICAL TEMPERATURE, PRESSURE AND VOLUME
THEORETICAL - TABLE (16 VALUES), EQUATIONS

94 CHANG,S. REE,T. EYRING,H. MATZNER,I.
STATISTICAL THEORY OF SURFACE TENSION.
PROGRESS IN INTERNATIONAL RESEARCH ON THERMODYNAMIC AND TRANSPORT PROPERTIES, PAPERS SYMP. THERMOPHYS. PROPERTIES, 2ND., PRINCETON, N.J., 1962, 88-92 (MASI,J.F. TSAI,D.H. EDS.)
ACADEMIC PRESS, N.Y. (1962)

SURFACE TENSION (LIQUID) (90 TO 120 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (4 VALUES)

95 CHEN,N.H.
GENERALIZED CORRELATION FOR LATENT HEAT OF VAPORIZATION.
J. CHEM. ENG. DATA VOL 10, NO. 2, 207-10 (APR 1965)

HEAT OF VAPORIZATION (GAS).
CALCULATION - EQUATIONS, GRAPH

96 CHERNYSHEV,A.K.
HEAT CONDUCTIVITY OF GASES AND VAPORS AT ATMOSPHERIC PRESSURE.
GAZ. PROM. VOL 10, NO. 10, 52-3 (1965) (IN RUSSIAN)

THERMAL CONDUCTIVITY (GAS)
CORRELATION - NOMOGRAPH

97 CHEUNG,H.
THERMAL CONDUCTIVITY AND VISCOSITY OF GAS MIXTURES.
CALIF. UNIV., LAWRENCE RADIATION LAB., BERKELEY, REPT. NO. UCRL-8230(APR 1958) CONTR. NO. W-7405-ENG-48, 139 PP

THERMAL CONDUCTIVITY (GAS) (371 TO 811 DEGREES K AND 26 TO 153 MM HG)
EXPERIMENTAL - TABLE (3 VALUES), GRAPHS, APPARATUS

98 CHEUNG,H. BROMLEY,L.A. WILKE,C.R.
THERMAL CONDUCTIVITY AND VISCOSITY OF GAS MIXTURES.
CALIFORNIA UNIV., LAWRENCE RADIATION LAB., BERKELEY, REPT. NO. UCRL-8230 REV. (APR 1959) CONTR. NO. W-7405-ENG-48, 64 PP

THERMAL CONDUCTIVITY (GAS)(371, 591, AND 810 DEGREES K AND 26 TO 130 MM HG)
EXPERIMENTAL - TABLE (3 VALUES), EQUATIONS

99 CHIPMAN,J.
FREE ENERGY OF WATER, CARBON MONOXIDE, CARBON DIOXIDE AND METHANE. THEIR METALLURGICAL SIGNIFICANCE.
IND. ENG. CHEM. VOL 24, NO. 9, 1013-17 (SEPT 1932)

FREE ENERGY (GAS) (298 TO 1873 DEGREES K)
CALCULATED - EQUATIONS, TABLE (3 VALUES)

100 CHIU,CHEN-HWA CANFIELD,F.B.
THERMODYNAMIC ANALYSIS OF VAPOR-LIQUID AND VAPOR-SOLID EQUILIBRIA DATA TO OBTAIN INTERACTION SECOND VIRIAL COEFFICIENTS.
ADVANCES IN CRYOGENIC ENGINEERING, VOL 12, 741-53, PROC. 12 TH CRYOGENIC ENGR. CONF., BOULDER, COLO., JUN 1966, PLENUM PRESS, NEW YORK (1967)

POTENTIAL FUNCTION, SECOND VIRIAL COEFFICIENT (GAS)(108 TO 423 DEGREES K)
THEORETICAL - TABLE (12 VALUES), GRAPH

101 CINI-CASTAGNOLI,G. PIZZELLA,G. RICCI,F.P.
TRANSPORT PROPERTIES IN THE LIQUID STATE AND THE CORRESPONDING STATE PRINCIPLE.
NUOVO CIMENTO VOL. 11, NO. 3, 466-67 (FEB 1959)

VISCOSITY, THERMAL CONDUCTIVITY, CORRESPONDING STATES (LIQUID)
THEORETICAL -EQUATIONS, GRAPH
TEMP RANGE E/KT = 0.8 TO 1.25 FOR THERMAL CONDUCTIVITY AND
= 1.3 TO 1.7 FOR VISCOSITY

102 CLUSIUS,K.
LA RELATION DES PRESSIONS DE VAPEUR DANS LES SYSTEMES (12)CH(4)/(13)CH(4)/(12)CH(3)D, (14)N(2)O/(15)N(14)NO, S(16)O(2)/S(18)O(2), ET (36)AR/(40)AR.
RELATION OF THE VAPOR PRESSURES IN THE SYSTEMS (12)CH(4)/(13)CH(4)/(12)CH(3)D, (14)N(2)O/(15)N(14)NO, S(16)O(2)/S(18)O(2), AND (36)AR/(40)AR.
J. CHIM. PHYS. VOL. 60, 66-69 (1963)

VAPOR PRESSURE DIFFERENCES DUE TO ISOTOPIC VARIATIONS IN THE MOLECULES (SAT. LIQUID) (99 TO 111 DEGREES K)
EXPERIMENTAL-GRAPH

103 CLUSIUS,K.
THERMISCHE EIGENSCHAFTEN DES D_2 UND SEINER VERBINDUNGEN. THERMAL PROPERTIES OF DEUTERIUM AND ITS COMPOUNDS.
Z. ELEKTROCHEM. VOL. 44, 21-31 (1938)

ENTROPY (GAS), MELTING TEMPERATURE, HEAT OF FUSION (90.6 DEGREES K), SOLID PHASE TRANSITIONS (15.7 AND 20.4 DEGREES K), TRIPLE POINT TEMPERATURE
A COMPARISON OF PROPERTIES OF HYDROGENATED COMPOUNDS WITH PROPERTIES OF DEUTERATED COMPOUNDS
DISCUSSION - EQUATIONS, TABLES (4 VALUES)

104 CLUSIUS,K.
UBER DIE SPEZIFISCHE WARME EINIGER KONDENSIERTER GASE ZWISCHEN 10 DEGREES ABS. UND IHREM TRIPEL PUNKT. THE SPECIFIC HEATS OF SOME CONDENSED GASES BETWEEN 10 DEGREES ABS AND THEIR TRIPLE POINTS.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. B3, 41-79 (1929)

SPECIFIC HEAT (CONSTANT PRESSURE) (SOLID, LIQUID) (10 TO 105 DEGREES K)
HEAT OF TRANSITION (SOLID) (17 TO 21 DEGREES K), HEAT OF FUSION (90 DEGREES K)
EXPERIMENTAL - TABLE (70 VALUES), EQUATIONS, APPARATUS

105 CLUSIUS,K. ENDTINGER,F. SCHLEICH,K.
ERGEBNISSE DER TIEFTEMPERATURFORSCHUNG.XXX. DIE DAMPFDRUCKDIFFERENZ VON 12CH4 UND 13CH4 ZWISCHEN SCHMELZ-UND SIEDEPUNKT. THE VAPOR PRESSURE DIFFERENCES OF 12CH4 AND 13CH4 BETWEEN MELTING AND BOILING POINTS.
HELV. CHIM. ACTA VOL. 43, NO. 159, 1267-73 (1960)

VAPOR PRESSURE (LIQUID) (91 TO 110 DEGREES K)
EXPERIMENTAL - TABLE (18 VALUES), GRAPH, EQUATION

106 CLUSIUS,K. PERLICK,A.
DIE UNSTETIGKEIT IM THERMISCHEN UND KALORISCHEN VERHALTEN DES METHANS BEI 20.4 DEGREES ABS. ALS PHASENUMWANDLUNG ZWEITER ORDNUNG. THE CHANGE IN THE THERMAL BEHAVIOR OF METHANE AT 20 DEGREES K FOR THE SECOND ORDER PHASE TRANSITION.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. B24, 313-27 (1934)

SPECIFIC HEAT (P=CONSTANT) (SOLID)(16.5 TO 24.5 DEGREES K),
SOLID PHASE TRANSITION (20.4 DEGREES K)
EXPERIMENTAL - GRAPH, APPARATUS

107 CLUSIUS,K. POPP,L. FRANK,A.
UBER UMWANDLUNGEN DES FESTEN MONO UND TETRADEUTEROMETHANS. DIE ENTROPIEVERHALTNISSE DES MONODEUTEROMETHANS UND DES DEUTERIUMHYDRIDS. THE TRANSITION OF THE SOLID MONO AND TETRA DEUTEROMETHANES. THE ENTROPY RELATION OF MONO DEUTEROMETHANE AND OF DEUTERIUM HYDRIDE.
PHYSICA VOL. 4, NO. 10, 1105-16 (1937)

SPECIFIC HEAT (CONSTANT PRESSURE) (SOLID, LIQUID) (12 TO 100 DEGREES K),
SOLID TRANSITION TEMPERATURE, TRIPLE POINT TEMPERATURE AND PRESSURE
EXPERIMENTAL - GRAPH, TABLE (5 VALUES)

108 CLUSIUS,K. SCHLEICH,K. ENDTINGER,F. ET AL.
LA RELATION DES PRESSIONS DE VAPEUR DANS LES SYSTEMES (12)CH(4)/(13)CH(4)/(12)CH(3)D, (14)N(2)O/(15)N(14)NO, S(16)O(2)/S(18)O(2) ET (36)AR/(40)AR.***RELATION OF THE VAPOR PRESSURES IN THE SYSTEMS (12)CH(4)/(13)CH(4)/(12)CH(3)D, (14)N(2)O/(15)N(14)NO, S(16)O(2)/S(18)O(2) ET (36)AR/(40)AR.
J. CHIM. PHYS. VOL 60, 66-9 (1962)

VAPOR PRESSURE (LIQUID) (99 TO 111 DEGREES K)
EXPERIMENTAL - GRAPH, EQUATION

109 CLUSIUS,K. WEIGAND,K.
DIE SCHMELZKURVEN DER GASEN A, KR, X, CH4, CH3D, CD4, C2H4, C2H6, COS UND PH3 BIS 200 ATM. DRUCK. DER VOLUMENSPRUNG BEIM SCHMELZEN. MELTING CURVES OF THE GASES A, KR, X, CH4, CH3D, C2H4, C2H6, COS, AND PH3 TO 200 ATM. PRESSURE. THE VOLUME CHANGE ON MELTING.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. B46, NO. 1, 1-37 (1940)

SPECIFIC VOLUME (SOLID, LIQUID) (90.67 DEGREES K)
MELTING CURVE (91 TO 95 DEGREES K), TRIPLE POINT TEMPERATURE
EXPERIMENTAL - TABLE (18 VALUES), EQUATIONS, GRAPH, APPARATUS

110 CODEGONE,C.
CONDUTTIVITA TERMICA E GRANDEZZE TERMODINAMICHE DEI GAS E DEI VAPORI. THERMAL CONDUCTIVITY AND MANY THERMODYNAMIC PROPERTIES OF GAS AND VAPOR.
TERMOTECNICA (MILAN) VOL. 6, 507-12 (DEC 1952)

THERMAL CONDUCTIVITY (GAS) (191 DEGREES K),
THEORY OF CORRESPONDING STATES (GAS)
THEORETICAL - EQUATION, GRAPHS

111 CODEGONE,C.
SULLA VISCOSITA DINAMICA DEI GASIE DEI VAPORI. DYNAMIC VISCOSITY OF GASES AND VAPORS.
ATTI ACCAD. SCI. TORINO, CLASSE SCI. FIS. MAT. NAT. VOL. 86, 126-28 (1951-2)

VISCOSITY (GAS) (191 TO 382 DEGREES K),
THEORY OF CORRESPONDING STATES (GAS)
THEORETICAL - GRAPH, EQUATIONS

112 CODEGONE,C.
LES NOMBRES DE PRANDTL DES FLUIDES FRIGORIFIQUES. THE PRANDTL NUMBERS OF REFRIGERANTS.
INST. INTERN. FROID, JOURNEES MONS, BELG., COMMUNS., 61-66 (1953)

VISCOSITY (GAS) (191 TO 420 DEGREES K), THERMAL CONDUCTIVITY (GAS) (191 TO 210 DEGREES K), ENTHALPY (GAS) (134 TO 1000 DEGREES K), PRANDTL NUMBER (GAS) (115 TO 2000 DEGREES K), CORRESPONDING STATES PRINCIPLE
CALCULATION - GRAPHS, EQUATIONS

113 CODEGONE,C.
LA VISCOSITA DEI GAS E DEI VAPORI (VISCOSITY OF GASES AND VAPORS)
RICERCA SCI. VOL. 22, 1416-19 (1952)

VISCOSITY (GAS) (191 TO 382 DEGREES K),
THEORY OF CORRESPONDING STATES (GAS)
THEORETICAL - GRAPH, EQUATIONS

114 CODEGONE,C.
KORRESPONDIERENDE ZUSTANDE FUR ZAHIGKEIT, WARMELEITFAHIGKEIT UND PRANDTL-ZAHL. CORRESPONDING STATES FOR VISCOSITY, THERMAL CONDUCTIVITY, AND PRANDTL NUMBER.
ALLGEM. WARMTECH. VOL. 8, NO. 3, 49-53 (1957)

THERMAL CONDUCTIVITY, VISCOSITY, SPECIFIC HEAT, PRANDTL NUMBER (GAS), THEORY OF CORRESPONDING STATES (GAS)
THEORETICAL - GRAPHS, EQUATIONS

115 CODEGONE,C.
DRUCK UND ENTROPIE DER GESATTIGTEN DAMPFE. PRESSURE AND ENTROPY OF SATURATED VAPORS.
ALLGEM. WARMTECH. VOL. 9, NO. 3, 58-59 (1959)

ENTROPY, DENSITY (SAT. VAPOR)
CORRELATION - GRAPHS

116 CODEGONE,C.
DIAGRAMMI TERMODINAMICI DEL METANO ESTESI ALLE BASSE TEMPERATURE FINO A 30 DEGREES K.
THERMODYNAMIC DIAGRAMS FOR METHANE ABOVE 30 DEGREES K.
TERMOTECNICA VOL 19, NO. 3, 115-8 (1965)

ENTROPY, ENTHALPY, DENSITY (SOLID, LIQUID, GAS) (30 TO 200 DEGREES K AND 0.000000000000017 TO 46 ATM), NORMAL BOILING POINT, TRIPLE POINT TEMPERATURE, PRESSURE AND DENSITY CALCULATION - TABLES (100 VALUES), EQUATIONS, GRAPHS

117 COLWELL,J.H. GILL,E.K. MORRISON,J.A.
SECOND TRANSITION IN SOLID CH4
J. CHEM. PHYS. VOL. 36, 2223-4 (1962)

HEAT CAPACITY (P=CONSTANT) (SOLID) (8 TO 23 DEGREES K), SOLID-SOLID TRANSITIONS (8 AND 20.4 DEGREES K)
EXPERIMENTAL - GRAPH

118 COLWELL,J.H. GILL,E.K. MORRISON,J.A.
THERMODYNAMIC PROPERTIES OF CH4 AND CD4. INTERPRETATION OF THE PROPERTIES OF THE SOLIDS.
J. CHEM. PHYS. VOL. 39, NO. 3, 635-53 (AUG 1963)

HEAT CAPACITY (P=CONSTANT) (SOLID, LIQUID) (2.3 TO 93.4 DEGREES K), ENTHALPY (SOLID) (19.66 TO 22.41 DEGREES K), ENTROPY (GAS) (29.8 DEGREES K AND 1 ATM), HEAT OF FUSION (90.66 TO 92.33 DEGREES K), TRIPLE POINT TEMPERATURE, HEAT OF SUBLIMATION (0 DEGREE K)
EXPERIMENTAL - TABLES (100 VALUES), GRAPHS, EQUATIONS

119 COLWELL,J.H. GILL,E.K. MORRISON,J.A.
THERMODYNAMIC PROPERTIES OF CH4 AND CD4.
J. CHEM. PHYS. VOL. 40, NO. 7, 2041-42 (APR 1964)

HEAT OF VAPORIZATION (LIQUID) (101.1 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE)

120 COMINGS,E.W. EGLY,R.S.
VISCOSITY OF GASES AND VAPORS AT HIGH PRESSURES
IND. ENG. CHEM. VOL. 32, 714-18 (1940)

VISCOSITY (GAS) (191 TO 535 DEGREES K)
CORRELATION - GRAPH

121 COMINGS,E.W. MAYLAND,B.J.
PREDICTING VISCOSITY OF GASES AT HIGH PRESSURES.
CHEM. MET. ENG. VOL. 52, NO. 3, 115-6 (1945)

VISCOSITY (GAS) (189.8 TO 571.7 DEGREES K AND 4 TO 455 ATM)
CORRELATION - GRAPH

122 COMINGS,E.W. MAYLAND,B.J. EGLY,R.S.
THE VISCOSITY OF GASES AT HIGH PRESSURES.
ILLINOIS UNIVERSITY ENG. EXPT. STA., URBANA, BULL. NO. 354 (NOV 1944) 66 PP

VISCOSITY (GAS) (303 TO 368 DEGREES K AND 1 TO 171 ATM)
EXPERIMENTAL - TABLE (160 VALUES), GRAPH, EQUATIONS, APPARATUS

123 COMINGS,E.W. NATHAN,M.F.
THERMAL CONDUCTIVITY OF GASES AT HIGH PRESSURES.
IND. ENG. CHEM. VOL. 39, 964-70 (AUG 1947)

THERMAL CONDUCTIVITY (GAS) (298 AND 373 DEGREES K AND 44 TO 312 ATM)
CALCULATION - GRAPH, EQUATION, TABLE OF COEFFICIENTS

124 COPSON,R.L. FROLICH,K.
VAPOR PRESSURE CHART FOR LOWER ALIPHATIC HYDROCARBONS.
IND. ENG. CHEM. VOL. 21, 1116-17 (1929)

VAPOR PRESSURE (LIQUID) (110 TO 190 DEGREES K AND 0.8 TO 50 ATM)
CORRELATION - CHART

125 CORCORAN,W.H. BOWLES,R.R. SAGE,B.H. LACEY,W.N.
THERMODYNAMIC PROPERTIES OF METHANE AT LOW TEMPERATURE.
IND. ENG. CHEM. VOL. 37, 825-28 (1945)

SPECIFIC VOLUME, ENTHALPY, ENTROPY (SAT. LIQUID, SAT. VAPOR) (138 TO 191 DEGREES K AND 3 TO 46 ATM), SPECIFIC VOLUME (LIQUID, GAS) (128 TO 294 DEGREES K AND 1 TO 95 ATM)
CORRELATION - TABLES (350 VALUES), GRAPH, EQUATIONS

126 COREMANS,J.M.J. BEENAKKER,J.J.M.
THE INFLUENCE OF THE DENSITY ON THE VISCOSITY COEFFICIENT OF GASES.
PHYSICA VOL. 26, NO. 8, 653-63 (AUG 1960)
(COMMUNS. KAMERLINGH ONNES LAB. UNIV. LEIDEN SUPPL. NO 117C (1960))

VISCOSITY (GAS) (298 TO 373 DEGREES K AND 46 TO 460 ATM), CORRESPONDING STATES THEORY
CORRELATION - GRAPHS, EQUATIONS

127 CORNER,J.
CONSTANTS OF THE BEATTIE-BRIDGEMAN EQUATION.
TRANS. FARADAY SOC. VOL. 37, 358-61 (1941)

EQUATION OF STATE (GAS)
THEORETICAL - EQUATIONS, TABLE (CONSTANTS FOR EQUATION)

128 CRAWFORD,M.F. WELSH,H.L. HARROLD,J.H.
ROTATIONAL WINGS OF RAMAN BANDS AND FREE ROTATION
IN LIQUID OXYGEN, NITROGEN, AND METHANE
CAN. J. PHYS. VOL 30, 81-98 (MAR 1952)

RAMAN SPECTRUM (SOLID, LIQUID)
EXPERIMENTAL - TABLE (7 VALUES), GRAPH, APPARATUS

129 CROMMELIN,C.A.
ON THE TRIPLE POINT OF METHANE.
KONINKL. NED. AKAD. WETENSCHAP. PROC. VOL. 15, 666 (1912),
OR COMMUNS. PHYS. LAB. UNIV. LEIDEN NO. 131B (1912)
ABSTR. IN J. CHEM. SOC. VOL 104, PT II, 20-21 (1912)

TRIPLE POINT TEMPERATURE AND PRESSURE
EXPERIMENTAL - TABLE (2 VALUES)

130 CUTLER,A.J.B. MORRISON,J.A.
EXCESS THERMODYNAMIC FUNCTIONS FOR LIQUID MIXTURES OF METHANE
PLUS PROPANE.
TRANS. FARADAY SOC. VOL 61, 429 (MAR 1965)

VAPOR PRESSURE, HEAT CAPACITY (LIQUID) (93 TO 107 DEGREES K)
EXPERIMENTAL - TABLES (20 VALUES)

131 DAS,T.R. KULOOR,N.R.
PREDICT ENTROPY OF VAPORIZATION.
HYDROCARBON PROCESS. PETROL. REFINER VOL. 47, NO. 2, 137-39
(1968)

ENTROPY OF VAPORIZATION (LIQUID) (128 TO 183 DEGREES K)
CORRELATION - GRAPH, EQUATIONS

132 DAVENPORT,A.J. ROWLINSON,J.S. SAVILLE,G.
SOLUTIONS OF THREE HYDROCARBONS IN LIQUID METHANE.
TRANS. FARADAY SOC. VOL 62, 322-27 (FEB 1966)

MOLAR VOLUME (LIQUID) (115 TO 154 DEGREES K)
EXPERIMENTAL - TABLE (20 VALUES)

133 DAVENPORT,A.N. WINTER,E.R.S.
DIFFUSION PROPERTIES OF GASES. PART V. THE THERMAL DIFFUSION
OF CARBON MONOXIDE, NITROGEN, AND METHANE.
TRANS. FARADAY SOC. VOL. 47, 1160-69 (1951)

THERMAL DIFFUSION (GAS) (195 TO 728 DEGREES K)
EXPERIMENTAL - TABLE (6 VALUES), EQUATIONS

134 DAVIES,D.B. MATHESON,A.J.
VISCOSITY OF LIQUIDS CONTAINING SPHERICAL MOLECULES OR IONS.
TRANS. FARADAY SOC. VOL 63, NO. 531, PT. 3, 596-603 (1967)

VISCOSITY (LIQUID) (99 TO 150 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH

135 DAVIS,D.S.
NOMOGRAPHS FOR THERMAL CONDUCTIVITIES OF GASES AND VAPORS.
IND. ENG. CHEM. VOL. 33, 675-8 (1941)

THERMAL CONDUCTIVITY (GAS) (93 TO 283 DEGREES K.
CORRELATION - NOMOGRAPH

136 DE ROCCO,A.G. HALFORD,J.O.
INTERMOLECULAR POTENTIALS OF ARGON, METHANE, AND ETHANE.
J. CHEM. PHYS. VOL. 28, NO. 6, 1152-54 (JUN 1958)

VISCOSITY (GAS) (211 TO 473 DEGREES K), SELF-DIFFUSION
COEFFICIENT (GAS) (90 TO 353 DEGREES K), POTENTIAL FUNCTION
EXPERIMENTAL - TABLES (25 VALUES), EQUATION

137 DEFFET,L. FICKS,F.
COMPRESSIBILITY AND FUGACITY OF METHANE UP TO 3000 ATMOSPHERES
AND 150 DEGREES C.
ADVANCES IN THERMOPHYSICAL PROPERTIES AT EXTREME TEMPERATURES,
ASME (1965) P 107-13

COMPRESSIBILITY FACTOR, FUGACITY COEFFICIENT (GAS)
(323 TO 424 DEGREES K AND 0 TO 3000 ATM)
EXPERIMENTAL - TABLES (200 VALUES), EQUATIONS, APPARATUS

138 DEFFET,L. LIALINE,L. FICKS,F.
LA COMPRESSIBILITE DU METHANE JUSQU A 3000 KG/CM2. THE
COMPRESSIBILITY OF METHANE UP TO 3,000 KG/CM2.
IND. CHIM. BELGE VOL 29, NO. 9, 879-88 (SEPT 1964)

COMPRESSIBILITY FACTOR (GAS) (323 TO 425 DEGREES K AND
0 TO 3000 KG/SQ CM)
EXPERIMENTAL - TABLES (210 VALUES), GRAPH, EQUATIONS, APPARATUS

139 DEL NUNZIO,B. MATTAROLO,L.
DAS GESETZ DER KORRESPONDIERENDEN ZUSTANDE BEIM STUDIUM DES
VERHALTENS DER KALTEMITTEL.***AN APPLICATION OF THE LAW OF THE
CORRESPONDING STATE FOR REFRIGERANTS.
KALTETECHNIK VOL 18, NO. 3, 100-02 (MAR 1966)

CORRESPONDING STATES PRINCIPLE (GAS)
THEORETICAL - GRAPHS, EQUATIONS

140 DELAPLACE,R.
PRESSION DE QUELQUES GAZ PERMANENTS AUX BASSES TEMP. ET EN
PRESENCE DE GEL DE SILICE. PRESSURES OF SOME PERMANENT GASES
AT LOW TEMPERATURES IN THE PRESENCE OF SILICA GEL.
COMPT. REND. VOL. 205, 664-65 (1937)

VAPOR PRESSURE (LIQUID) (105 TO 139 DEGREES K)
EXPERIMENTAL - TABLE (18 VALUES)

141 DELAPLACE,R.
TENSION DE VAPEUR DES CARBURES GAZEUX SATURES AUX BASSES TEMPERATURES EN PRESENCE DE GEL DE SILICE. VAPOR PRESSURE OF SATURATED CARBON GASES AT LOW TEMPERATURES IN THE PRESENCE OF SILICA GEL.
COMPT. REND. VOL. 204, 1940-41 (1937)

VAPOR PRESSURE (LIQUID) (102 TO 138 DEGREES K)
EXPERIMENTAL - TABLE (9 VALUES)

142 DENNISON,D.M.
THE INFRA-RED SPECTRA OF POLYATOMIC MOLECULES, PART II.
REV. MOD. PHYS. VOL 12, NO. 3, 175-214 (JUL 1940)

INFRARED SPECTRA
EXPERIMENTAL - TABLE

143 DEVYATYKH,G.G. ZORIN,A.D.
DETERMINATION OF THE RELATIVE VAPOR PRESSURE OF METHANE AND OXYGEN ISOTOPES BY THE RAYLEIGH DISTILLATION METHOD.
ZHUR. FIZ. KHIM. VOL. 30, NO. 5, 1133-39 (1956) (IN RUSSIAN)

VAPOR PRESSURE RATIO OF THE METHANES WITH CARBON-12 AND CARBON-13 (LIQUID) (90 TO 112 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES), EQUATION, GRAPH, APPARATUS

144 DICKINSON,R.G. DILLON,R.T. RASETTI,F.
RAMAN SPECTRA OF POLYATOMIC GASES.
PHYS. REV. VOL 34, 582-9 (AUG 1929)

RAMAN SPECTRUM (GAS)
EXPERIMENTAL - TABLE

145 DIN,F. (EDITOR)
THERMODYNAMIC FUNCTIONS OF GASES VOL. 3. ETHANE, METHANE AND NITROGEN.
LONDON, BUTTERWORTHS SCIENTIFIC PUBLICATIONS (1961) 219 PP

ENTROPY, ENTHALPY, SPECIFIC VOLUME (SAT. LIQUID AND SAT. VAPOR) (100 TO 191 DEGREES K), ENTROPY, ENTHALPY, SPECIFIC HEAT (P=CONSTANT), SPECIFIC VOLUME, FUGACITY, JOULE-THOMSON COEFFICIENT (GAS) (130 TO 470 DEGREES K AND 1 TO 1000 ATM), SPECIFIC HEAT (V=CONSTANT) (240 TO 470 DEGREES K AND 1 TO 1000 ATM), SPECIFIC HEAT (P=CONSTANT, V=CONSTANT), ENTROPY, ENTHALPY (IDEAL GAS) (100 TO 450 DEGREES K), VAPOR PRESSURE (LIQUID) (100 TO 191 DEGREES K), HEAT OF VAPORIZATION (100 TO 191 DEGREES K), SPECIFIC HEAT (SAT. LIQUID) (95 TO 185 DEGREES K), SPECIFIC HEAT (SAT.SOLID) (10 TO 90 DEGREES K), CRITICAL TEMPERATURE, PRESSURE AND DENSITY, TRIPLE POINT TEMPERATURE AND PRESSURE, NORMAL BOILING POINT
BOOK - TABLES (8500 VALUES), GRAPH, EQUATION

146 DINGLINGER,G.
ERMITTLUNG DER SPEZIFISCHEN VOLUMEN FUR KOHLENSAURE, PROPAN UND METHAN. INVESTIGATION OF THE SPECIFIC VOLUME FOR CARBON DIOXIDE, PROPANE AND METHANE.
CHEMIKER-ZTG. VOL 80, NO. 5, 135-38 (1956)

SPECIFIC VOLUME (GAS) (233 TO 373 DEGREES K AND 10 TO 225 ATMOSPHERES)
CALCULATION - GRAPHS, EQUATIONS

147 DIXON,H.B. CAMBELL,C. PARKER,A.
THE VELOCITY OF SOUND IN GASES OF HIGH TEMPERATURES AND THE RATIO OF THE SPECIFIC HEATS.
PROC. ROY. SOC. (LONDON) VOL. A100, 1-26 (1921)

VELOCITY OF SOUND (GAS) (288 TO 913 DEGREES K), SPECIFIC HEATS (P=CONSTANT, V=CONSTANT) (GAS) (273 TO 873 DEGREES K)
EXPERIMENTAL - TABLES (20 VALUES), GRAPHS

148 DOBRINESCU,D. APOLZAN,S.
VARIATION OF SPECIFIC HEATS AND ADIABATIC COEFFICIENTS OF GASES WITH PRESSURE AND TEMPERATURE.
BUL. INST. PETROL, GAZE GEOL. (BUCHAREST) VOL 12, 81-93 (1964) (IN ROMANIAN)

SPECIFIC HEAT (P=CONSTANT, V=CONSTANT)(GAS)(112 TO 700 DEGREES K AND 1 TO 200 ATM)
CALCULATED - EQUATIONS, GRAPH
-CODED FROM ABSTRACT-

149 DOBROVOLSKIJ,O.A. BELYAEVA,T.N. GOLUBEV,I.F.
IZMERENIE PLOTNOSTI METANA METODOM GIDROSTATICFSKOGO VZYESIVANIJA
DETERMINATION OF METHANE DENSITY BY THE METHOD OF A HYDROSTATIC SUSPENSION.
GAZ. PROM. VOL 9, NO. 11, 47-48 (1964)

DENSITY (GAS) (110 TO 191 DEGREES K AND 1 TO 500 ATM)
EXPERIMENTAL - GRAPH, TABLE (50 VALUES)

150 DORNER,B. STILLER,H.
LATTICE DYNAMICS OF SOLID METHANE.
INELASTIC SCATTERING NEUTRONS, PROC. SYMP., 4TH, BOMBAY, 1964, VOL 2, 291-304 (1965)

CRYSTAL STRUCTURE (GAMMA PHASE)
EXPERIMENTAL
-CODED FROM ABSTRACT-

151 DORNER,B. STILLER,H.H.
DIE INNERE DYNAMIK DER TIEFTEMPERATURPHASEN DES MOLEKULKRISTALLS CH(4).-
THE INTERNAL DYNAMICS OF LOW TEMPERATURE PHASES OF SOLID CH(4).
PHYS. STATUS SOLIDI VOL. 18, NO. 2, 795-806 (1966)

SOLID-SOLID PHASE TRANSITIONS (6.5 AND 20.5 DEGREES K)
EXPERIMENTAL - TABLE (2 VALUES), GRAPH

152 DOUSLIN,D.R.
PRESSURE-VOLUME-TEMPERATURE RELATIONS AND INTERMOLECULAR POTENTIALS FOR METHANE AND TETRAFLUOROMETHANE.
PROGRESS IN INTERNATIONAL RESEARCH ON THERMODYNAMIC AND TRANSPORT PROPERTIES (SYMP. ON THERMOPHYSICAL PROPERTIES, 2ND, PRINCETON, N. J., 1962) 135-46, ACADEMIC PRESS, N. Y. (1962)

P-V-T DATA, SECOND, THIRD, AND FOURTH VIRIAL COEFFICIENTS, POTENTIAL FUNCTIONS, (GAS) (273 TO 623 DEGREES K AND 15 TO 400 ATM)
EXPERIMENTAL - TABLES (405 VALUES), GRAPHS

153 DOUSLIN,D.R. HARRISON,R.H. MOORE,R.T. MC CULLOUGH,J.P.
P-V-T RELATIONS FOR METHANE.
J. CHEM. ENG. DATA VOL. 9, NO. 3, 358-63 (JUL 1964)

DENSITY, COMPRESSIBILITY FACTOR, VIRIAL COEFFICIENTS (GAS)
(273 TO 623 DEGREES K AND 0.7 TO 12.5 ATM)
EXPERIMENTAL - TABLE (550 VALUES), GRAPH, EQUATIONS

154 DYMOND,J.H. RIGBY,M. SMITH,E.B.
INTERMOLECULAR POTENTIAL-ENERGY FUNCTION FOR SIMPLE MOLECULES.
J. CHEM. PHYS. VOL 42, NO. 8, 2801-6 (1965)

POTENTIAL FUNCTION, SECOND VIRIAL COEFFICIENT, JOULE-
THOMSON COEFFICIENT (GAS) (273 TO 423 DEGREES K)
THEORETICAL - EQUATIONS, TABLES (80 VALUES)

155 EAKIN,B.E. ELLINGTON,R.T.
PREDICTING THE VISCOSITY OF PURE LIGHT HYDROCARBONS.
J. PETROL. TECHNOL. VOL 15, NO. 2, 210-4 (1963)

VISCOSITY (GAS)
CALCULATION - EQUATIONS, GRAPHS

156 EDMISTER,W.C.
THERMODYNAMIC PROPERTIES OF METHANE.
IND. ENG. CHEM. VOL 28, NO. 9, 1112-6 (SEP 1936)

SPECIFIC HEAT (P = CONSTANT, V = CONSTANT), JOULE-THOMSON
COEFFICIENTS, ENTROPY, ENTHALPY (GAS) (203 TO 473 DEGREES K
AND 1 TO 120 ATM)
CALCULATED - TABLE (900 VALUES), GRAPHS, EQUATIONS

157 EDMISTER,W.C.
THERMODYNAMIC PROPERTIES OF HYDROCARBONS.
IND. ENG. CHEM. VOL. 30, 352-58 (1938)

SPECIFIC HEAT (CONSTANT PRESSURE), ENTROPY, ENTHALPY
(GAS) (153 TO 477 DEGREES K AND 2 TO 252 ATM),
CRITICAL CONSTANTS
CALCULATION - TABLE (600 VALUES), GRAPH, EQUATIONS

158 EDMISTER,W.C.
ENTHALPY-ENTROPY DIAGRAM IS DEVELOPED FOR METHANE.
OIL GAS J. VOL. 35, NO. 25, 50-52 (1936)

ENTHALPY, ENTROPY (LIQUID, GAS)(100 TO 477 DEGREES K),
SPECIFIC HEAT (CONSTANT PRESSURE)(GAS)(172 TO 477 DEGREES K)
CORRELATION - GRAPHS, EQUATION

159 EDMISTER,W.C.
APPLICATIONS OF THERMODYNAMICS TO HYDROCARBON PROCESSING.
PART XIII - HEAT CAPACITIES.
PETROL. REFINER VOL. 27, NO. 11, 609-15 (1948)

SPECIFIC HEAT (P = CONSTANT) (GAS) (173 TO 478 DEGREES K
AND 14.7 TO 1800 PSIA), SPECIFIC HEAT (SAT. LIQ.)
(173 TO 188 DEGREES K)
REVIEW - GRAPHS, EQUATIONS

160 EDMISTER,W.C.
APPLIED HYDROCARBON THERMODYNAMICS
PETROL. REFINER VOL. 37, 153 (1958)

COMPRESSIBILITY FACTOR, ADIABATIC COMPRESSIBILITY,
SPECIFIC HEAT (P = CONSTANT), ENTROPY, ENTHALPY (GAS)
(158 TO 306 DEGREES K), HEAT CAPACITY (IDEAL GAS)
(P = CONSTANT) (200 TO 738 DEGREES K), CRITICAL TEMPERATURE
AND PRESSURE
CALCULATED - TABLES (400 VALUES), EQUATIONS, GRAPHS

161 EDMISTER,W.C.
APPLIED HYDROCARBON THERMODYNAMICS, VOL 1.
GULF PUBLISHING COMPANY, HOUSTON, TEXAS (1961) 312 P.

ENTROPY, ENTHALPY, SPECIFIC VOLUME (GAS) (90 TO 478 DEGREES K
AND 14 TO 4000 PSIA), ENTROPY, ENTHALPY, SPECIFIC VOLUME
(LIQUID, SAT. LIQUID AND SAT. VAPOR)(90 TO 191 DEGREES K),
NORMAL BOILING TEMPERATURE, CRITICAL TEMPERATURE AND PRESSURE
BOOK - MOLLIER CHART, TABLE (3 VALUES)

162 EDWARDS,D.G.
THE VAPOR PRESSURE OF 30 INORGANIC LIQUIDS BETWEEN L
ATMOSPHERE AND THE CRITICAL POINT.
CALIF. UNIV., LAWRENCE RAD. LAB., LIVERMORE, REPT. NO.
UCRL-7167 (JUN 1963) CONTR. NO. W-7405-ENG-48, 51 PP

VAPOR PRESSURE (LIQUID)(113 TO 191 DEGREES K)
CALCULATED - TABLE (45 VALUES), GRAPHS, EQUATIONS

163 EL NADI,M. ABU ZEID,F.
THE SUTHERLAND MODEL FOR THE VISCOSITY OF GASES.
J. PHYS. CHEM. VOL. 59, 1107-09 (1955)

VISCOSITY (GAS)
THEORETICAL - EQUATION, TABLE (COEFFICIENTS FOR EQUATION)

164 ELLENWOOD,F.O. KULIK,N. GAY,N.R.
THE SPECIFIC HEATS OF CERTAIN GASES OVER WIDE RANGES OF PRESSURES
AND TEMPERATURES.
CORNELL UNIV., ITHACA, N.Y., EXPTL. STA. BULL. NO. 30 (OCT.
1942) 22 PP

SPECIFIC HEAT (ZERO PRESSURE) (198 TO 3000 DEGREES K),
SPECIFIC HEAT (P=CONSTANT) (253 TO 2000 DEGREES K AND 0 TO
10,000 PSIA)
CALCULATION - TABLE (17 VALUES), EQUATIONS, GRAPHS

165 ELLIS,C.P.
THE VARIATION OF GASEOUS VISCOSITY WITH TEMPERATURE.
S. AFRICAN J. SCI. VOL 58, NO. 4, 115-20 (APR 1962)

VISCOSITY (GAS) (173 TO 480 DEGREES K)
REVIEW - TABLE (5 VALUES), EQUATIONS

166 EUCKEN,A.
UBER DIE FORTSETZUNG DER DAMPFDRUCKKURVE OBERHALB DES KRITISCHEN PUNKTES. CONTINUATION OF THE VAPOR-PRESSURE CURVE ABOVE THE CRITICAL POINT.
PHYSIK. Z. VOL. 35, 708-11 (1934)

VAPOR PRESSURE (LIQUID), CRITICAL TEMPERATURE AND PRESSURE
THEORETICAL - EQUATIONS, GRAPHS

167 EUCKEN,A.
UBER DAS WARME EITVERMOGEN, DIE SPEZIFISCHE WARME UND DIE INNERE REIBUNG DER GASE. CONCERNING THE THERMAL CONDUCTIVITY, SPECIFIC HEAT AND VISCOSITY OF GASES.
PHYSIK. Z. VOL. 14, 324-32 (1913)

THERMAL CONDUCTIVITY (GAS) (91 TO 273 DEGREES K)
EXPERIMENTAL - TABLES (3 VALUES)

168 EUCKEN,A.
ALLGEMEINE GESETZMASSIGKEITEN FUR DAS WARMELEITVERMOGEN VERSCHIEDENER STOFFARTEN UND AGGREGATZUSTANDE. GENERAL LAWS FOR HEAT CONDUCTIVITY OF VARIOUS MATERIALS AND STATES OF AGGREGATION.
FORSCH. GEBIETE INGENIEURW. VOL 11, NO. 1, 6-20 (JAN-FEB 1940)

THERMAL CONDUCTIVITY, VISCOSITY, SPECIFIC HEAT (V=CONSTANT) (273 DEGREES K)
DISCUSSION - EQUATIONS, TABLE (3 VALUES)

169 EUCKEN,A.
ZUR KENNTNIS DES SCHMELZPROZESSES.***CONCERNING INFORMATION OF THE MELTING PROCESSES.
CHEMIE VOL 55, 163-72 (1942)

ENTROPY OF MELTING, ENTROPY OF SOLID TRANSITION
DISCUSSION - EQUATIONS, GRAPHS, TABLE (2 VALUES)

170 EUCKEN,A. BERGER,W.
DAS I-T-DIAGRAMM DES METHANS. THE I-T DIAGRAM OF METHANE.
Z. GES. KALTE-IND. VOL. 41, NO. 9, 145-52 (1934)

VAPOR PRESSURE (LIQUID) (132 TO 181 DEGREES K), HEAT OF VAPORIZATION (112 TO 189 DEGREES K), SPECIFIC HEAT (CONSTANT PRESSURE)(GAS) (100 TO 300 DEGREES K), ENTHALPY (GAS) (110 TO 290 DEGREES K)
EXPERIMENTAL - TABLE (30 VALUES), GRAPHS, EQUATIONS

171 EUCKEN,A. KARWAT,E.
DIE BESTIMMUNG DES WARMEINHALTES EINIGER KONDENSIERTER GASE. DETERMINATION OF HEAT CONTENT OF SOME CONDENSED GASES.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. 112, 467-85 (1925)

SPECIFIC HEAT (CONSTANT PRESSURE) (SOLID, LIQUID) (29 TO 109 DEGREES K), HEAT OF FUSION
EXPERIMENTAL - TABLE (25 VALUES), GRAPH, EQUATION

172 EUCKEN,A. LUDE,K.
DIE SPEZIFISCHE WARME DER GASE BEI MITTLEREN UND HOHEN TEMPERATUREN. I. DIE SPEZIFISCHE WARME DER GASE. LUFT, STICKSTOFF, SAUERSTOFF, KOHLENOXYD, KOHLENSAURE, STICKOXYDUL UND METHAN ZWISCHEN 0 GRAD UND 200 GRAD C. THE SPECIFIC HEATS OF GASES AT MEDIUM AND HIGH TEMPERATURES. I. THE SPECIFIC HEAT OF THE GASES AIR, N2, O2, CO, CO2, NO, AND CH4 BETWEEN 0 DEGREE AND 200 DEGREES C.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. B5, 413-41 (1929)

SPECIFIC HEAT (CONSTANT PRESSURE) (GAS) (297 TO 481 DEGREES K)
EXPERIMENTAL - TABLE (3 VALUES), GRAPH, APPARATUS

173 EUCKEN,A. VEITH,H.
DIE MOLWARME DES METHANS IN FESTEN CH4-KR-MISCHUNGEN.
MOLECULAR HEAT OF METHANE IN SOLID METHANE-KRYPTON MIXTURES.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. B34, 275-99 (1936)

SPECIFIC HEAT (CONSTANT VOLUME) (SOLID) (12.5 TO 80 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES)

174 EUCKEN,A. VEITH,H.
BERICHTIGUNG UND ERGANZUNG ZU DER ARBEIT, DIE MOLWARME DES METHANE IN FESTEN CH(4)-KR MISCHUNGEN.
CORRECTION AND COMPLETION OF WORK. MOLAR HEAT OF METHANE IN SOLID CH(4)-KR MIXTURES.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. B 38, 393-4 (1938)

SPECIFIC HEAT (SOLID) (12.5 TO 30 DEGREES K)
EXPERIMENTAL - TABLE (7 VALUES)

175 EYRING,H. FULLER,E.J. REE,TAIKYNE
SIGNIFICANT STRUCTURES FOR TRANSPORT AND THERMODYNAMIC PROPERTIES OF LIQUIDS.
AM. CHEM. SOC. DIV. PETROL. CHEM. PREPRINTS VOL 5, NO. 3, 73-81 (1960)

P-V-T DATA (LIQUID) (90 TO 112 DEGREES K AND 0.1172 TO 1.0054 ATM), VISCOSITY, (LIQUID) (90 TO 175 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (8 VALUES), GRAPH

176 EYRING,H. MARCHI,R.P.
SIGNIFICANT STRUCTURE THEORY OF LIQUIDS.
J. CHEM. EDUC. VOL. 40, NO. 11, 562-72 (1962)

SURFACE TENSION (LIQUID) (90 TO 120 DEGREES K),
CRITICAL TEMPERATURE, PRESSURE AND VOLUME, NORMAL BOILING TEMPERATURE, TRIPLE POINT TEMPERATURE, PRESSURE AND VOLUME, ENTROPY OF FUSION, ENTROPY OF VAPORIZATION
THEORETICAL - EQUATIONS, TABLES (15 VALUES)

177 EYRING,H. REE,T.S. REE,T.
RECENT DEVELOPMENTS IN THE SIGNIFICANT STRUCTURE THEORY OF LIQUIDS.
INTERN. J. ENG. SCI. VOL 3, 285-305 (AUG 1965)

SURFACE TENSION, VISCOSITY, DIFFUSION COEFFICIENT (LIQUID) (100 TO 130 DEGREES K)
THEORETICAL - EQUATIONS, TABLE

178 FISCHER,S.
ZUR BERUCKSICHTIGUNG DER TEMPERATURABHANGIGKEIT DER SPEZIFISCHEN WARME VON EINZELGASEN UND GASMISCHUNG BEI DER THERMODYNAMISCHEN BERECHNUNG VON STROMUNGSMASCHINEN.
ALLOWANCE FOR THE TEMPERATURE DEPENDENCE OF THE SPECIFIC HEAT OF INDIVIDUAL GASES AND GAS MIXTURES IN THERMODYNAMIC CALCULATIONS FOR GAS FLOW MACHINES.
FREIBERGER FORSCHUNGSH. VOL 381, 99-103 (1965)

SPECIFIC HEAT (P = CONSTANT) (GAS) (200 TO 1500 DEGREES K)
CALCULATED - TABLE (130 VALUES)

179 FLYNN,L.W. THODOS,G.
THE VISCOSITY OF HYDROCARBON GASES AT NORMAL PRESSURES.
J. CHEM. ENG. DATA VOL 6, NO. 3, 457-59 (JUL 1961)

VISCOSITY (GAS) (308 TO 669 DEGREES K)
CORRELATION - GRAPHS, EQUATION, TABLE OF COEFFICIENTS

180 FLYNN,L.W. THODOS,G.
LENNARD-JONES FORCE CONSTANTS FROM VISCOSITY DATA - THEIR RELATIONSHIP TO CRITICAL PROPERTIES.
A.I.CH.E. JOURNAL VOL 8, NO. 3, 362-65 (JUL 1962)

POTENTIAL FUNCTION, CRITICAL CONSTANTS
CORRELATION - EQUATIONS, GRAPHS

181 FRANCIS,A.W.
PRESSURE-TEMPERATURE-LIQUID DENSITY RELATIONS OF PURE HYDROCARBONS.
IND. ENG. CHEM. VOL 49, NO. 10, 1779-86 (OCT 1957)

DENSITY (SATURATED LIQUID) (111 TO 191 DEGREES K)
THEORETICAL - EQUATION, TABLE (COEFFICIENTS FOR THE EQUATION)

182 FRANCIS,P.G. LUCKHURST,G.R.
JOULE-THOMSON COEFFICIENTS AND THE PRINCIPLES OF CORRESPONDING STATES.
TRANS. FARADAY SOC. VOL 59, 667-72 (1963)

JOULE-THOMSON COEFFICIENT (GAS) (120 TO 134 DEGREES K),
CORRESPONDING STATES THEORY
CORRELATION - EQUATIONS, GRAPH

183 FRANCK,E.U.
WARMELEITUNG IN HOCHVERDICHTETEN GASEN. THERMAL CONDUCTION IN HIGH COMPRESSED GASES.
CHEM. ING. TECH. VOL. 25, 238-44 (1953)

THERMAL CONDUCTIVITY (GAS) (273 TO 473 DEGREES K AND 1 TO 500 KG/SQ CM)
EXPERIMENTAL - GRAPH, EQUATION

184 FRANK,A. CLUSIUS,K.
ZUR ENTROPIE DES METHANS. THE ENTROPY OF METHANE.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. B36, 291-300 (1937)

SPECIFIC HEAT (P=CONSTANT) (SOLID) (15 TO 26 DEGREES K),
HEAT OF TRANSITION (20.4 DEGREES K)
EXPERIMENTAL - TABLES (28 VALUES), EQUATIONS

185 FRANK,A. CLUSIUS,K.
PRAZISIONSMESSUNGEN DER VERDAMPFUNGSWARME DER GASE O2, H2S, PH3, A, COS, CH4, AND CH3D. PRECISION MEASUREMENTS OF THE HEAT OF VAPORIZATION OF GASES O2, H2S, PH3, A, COS, CH4, AND CH3D.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. B42, 395-421 (1939)

HEAT OF VAPORIZATION (LIQUID) (99.54 AND 111.5 DEGREES K),
VAPOR PRESSURE (LIQUID) (99 TO 100 DEGREES K)
EXPERIMENTAL - TABLE (36 VALUES)

186 FREETH,F.A. VERSCHOYLE,T.T.H.
PHYSICAL CONSTANTS OF THE SYSTEM METHANE-HYDROGEN.
PROC. ROY. SOC. (LONDON) VOL. A130, 453-63 (1931)

P-V-T DATA (GAS) (273 AND 293 DEGREES K AND 20 TO 215 ATM),
VAPOR PRESSURE (SOLID) (65 TO 91 DEGREES K), MELTING CURVE (91 TO 92 DEGREES K)
EXPERIMENTAL - TABLES (40 VALUES), EQUATION, GRAPH

187 FREISER,M.J. JAMES,H.M.
ISOTOPIC DEPENDENCE OF THE TEMPERATURE OF THE TRANSITION I--II IN METHANE.
BULL. AM. PHYS. SOC. SER. 11, 1, 349 (JAN 1956)

TRANSITION (SOLID-SOLID) (20.4 DEGREES K)
EXPERIMENTAL
ABSTRACT ONLY

188 FROST,A.A. KALKWARF,D.R.
A SEMI-EMPIRICAL EQUATION OF THE VAPOR PRESSURE OF LIQUIDS AS A FUNCTION OF TEMPERATURE.
J. CHEM. PHYS. VOL. 21, NO. 2, 264-67 (1953)

VAPOR PRESSURE (LIQUID)
THEORETICAL - EQUATION, TABLE OF COEFFICIENTS

189 FUKS,S. BELLEMANS,A.
THE SURFACE TENSION OF KRYPTON, METHANE AND THEIR MIXTURES.
PHYSICA VOL 32, NO. 3, 594-602 (MAR 1966)

SURFACE TENSION (91 TO 116 DEGREES K)
EXPERIMENTAL - TABLE (25 VALUES), EQUATIONS, APPARATUS

190 FUKS,S. LEGROS,J.-C. BELLEMANS,A.
THE MOLAR VOLUMES OF LIQUID METHANE AND DEUTEROMETHANE.
PHYSICA VOL 31, NO. 4, 606-12 (APR 1965)

DENSITY (SATURATED LIQUID) (98 TO 112 DEGREES K)
EXPERIMENTAL - TABLE (15 VALUES), EQUATIONS, APPARATUS

191 FUKUDA,Y. KOBAYASHI,R.
HOLE-THEORY STUDY OF THE ISOCHORIC BEHAVIOR IN THE LIQUID STATE.
J. CHEM. PHYS. VOL 46, NO. 7, 2661-6 (APR 1967)

LIQUID STRUCTURE, POTENTIAL FUNCTION (LIQUID), TRIPLE POINT DENSITY
THEORETICAL - EQUATIONS, GRAPHS, TABLE OF CRITICAL CONSTANTS

192 GALLANT,R.W.
PHYSICAL PROPERTIES OF HYDROCARBONS. PART 1 - METHANE-ETHANE-PROPANE-BUTANE.
HYDROCARBON PROCESS. PETROL. REFINER VOL 44, NO. 7, 95-103 (JUL 1965)

VAPOR PRESSURE (LIQUID) (123 TO 193 DEGREES K), HEAT OF VAPORIZATION, HEAT CAPACITY, DENSITY (LIQUID) (93 TO 193 DEGREES K), SURFACE TENSION, VISCOSITY (LIQUID) (88 TO 193 DEGREES K), HEAT CAPACITY (GAS) (143 TO 1873 DEGREES K), VISCOSITY (GAS) (93 TO 403 DEGREES K), NORMAL BOILING TEMPERATURE, TRIPLE POINT TEMPERATURE, CRITICAL TEMPERATURE, PRESSURE, AND DENSITY
COMPILATION - GRAPHS, TABLE (5 VALUES)

193 GALLANT,R.W.
PHYSICAL PROPERTIES OF HYDROCARBONS. PART 9-THERMAL CONDUCTIVITY OF C1 TO C4 HYDROCARBONS.
HYDROCARBON PROCESS. VOL. 45, NO. 12, 113-22 (DEC 1966)

THERMAL CONDUCTIVITY (LIQUID) (99 TO 235 DEGREES K AND 500 TO 7000 PSIA), THERMAL CONDUCTIVITY (GAS) (273 TO 1273 DEGREES K AND 1 ATM)
COMPILATION - GRAPHS
DATA FROM REFERENCES 264, 302, 359, AND 455

194 GALLOWAY,T.R. SAGE,B.H.
TRANSPORT PROPERTIES OF THE NORMAL PARAFFINS AT ATTENUATION.
J. CHEM. ENG. DATA VOL 12, NO. 1, 59-65 (JAN 1967)

VISCOSITY, THERMAL CONDUCTIVITY (GAS) (278 TO 428 DEGREES K)
CORRELATION - TABLES (18 VALUES), GRAPHS

195 GAMBHIR,R.S. SAXENA,S.C.
ZERO-PRESSURE JOULE-THOMSON COEFFICIENT FOR A FEW NON POLAR GASES ON THE MORSE POTENTIAL.
INDIAN J. PHYS. VOL 37, NO. 10, 540-42 (1963)

JOULE-THOMSON COEFFICIENT (GAS) (100 TO 690 DEGREES K)
CORRELATION - GRAPH

196 GAMBILL,W.R.
YOU CAN PREDICT GAS CONDUCTIVITY.
CHEM. ENG. VOL. 64, 277-82 (APR 1957)

THERMAL CONDUCTIVITY (GAS) (114 TO 2000 DEGREES K)
CALCULATION - GRAPH

197 GAMSON,B.W.
A GENERALIZED THERMAL CONDUCTIVITY CORRELATION FOR GAS STATE.
CHEM. ENG. PROGR. VOL. 45, 154-9 (1949)

THERMAL CONDUCTIVITY (GAS) (117 TO 344 DEGREES K)
CORRELATION - EQUATIONS, GRAPH

198 GAVEN,J.V. WAUGH,J.S. STOCKMAYER,W.H.
SELF-DIFFUSION AND IMPURITY-CONTROLLED PROTON RELAXATION IN LIQUID METHANE.
J. CHEM. PHYS. VOL. 38, NO. 2, 287-90 (JAN 1963)

SELF-DIFFUSION (SAT. LIQUID) (91 TO 111 DEGREES K)
EXPERIMENTAL - GRAPH, EQUATIONS

199 GEIER,H. SCHAFER,K.
WARMELEITFAHIGKEIT VON REINEN GASEN UND GASGEMISCHEN ZWISCHEN 0 DEGREES UND 1200 DEGREES C.***THERMAL CONDUCTIVITY OF PURE GASES AND GAS MIXTURES BETWEEN 0 AND 1200 DEGREES C.
ALLGEMEINE WARMETECHNIK VOL 4, 70-5 (1961)

THERMAL CONDUCTIVITY (GAS) (273 TO 973 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES), EQUATIONS, APPARATUS

200 GERF,S.F. GALKOV,G.I.
VISCOSITY OF LIQUEFIED PURE GASES AND THEIR MIXTURES, I.
ZHUR. TEKH. FIZ. VOL. 10, 725-32 (1940)
(TRANSL. AVAIL. FROM OTS $1.10 NO. 61-18004)

VISCOSITY (LIQUID) (94 TO 111 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES)

201 GERF,S.F. GALKOV,G.I.
VISCOSITY OF LIQUEFIED PURE GASES AND THEIR MIXTURES, III.
ZHUR. TEKH. FIZ. VOL. 11, 801-08 (1941)
(TRANS. AVAIL. FROM OTS, NO. 61-18002)

VISCOSITY (LIQUID) (131 TO 181 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES)

202 GERRITSEN,A.N. VAN DER STAR,P.
THE HEAT CONDUCTIVITY OF SOLID METHANE.
PHYSICA VOL. 9, 503-12 (MAY 1942)
COMMUNS. KAMERLINGH ONNES LAB. UNIV. LEIDEN NO. 265C (1942)

THERMAL CONDUCTIVITY (SOLID) (19 TO 21 DEGREES K)
EXPERIMENTAL - GRAPHS, EQUATION, APPARATUS

203 GIACOMINI,F.A.
THE TEMPERATURE DEPENDENCY OF THE MOLECULAR HEATS OF GASES, ESPECIALLY OF AMMONIA, METHANE, AND HYDROGEN AT LOW TEMPERATURES.
PHIL. MAG. VOL. 50, 146-56 (1925)

SPECIFIC HEAT (V=CONSTANT) (GAS) (83 TO 278 DEGREES K AND 0.1 TO 1 ATM)
EXPERIMENTAL - TABLE (5 VALUES), GRAPH

204 GIAUQUE,W.F. BLUE,R.W. OVERSTREET,R.
ENTROPIES OF METHANE AND AMMONIA.
PHYS. REV. VOL. 38, 196-97 (1931)

ENTROPY (GAS) (298 DEGREES K)
CALCULATED - 1 VALUE

205 GIDDINGS,J.G.
THE VISCOSITY OF LIGHT HYDROCARBON MIXTURES AT HIGH PRESSURES.
THE METHANE-PROPANE SYSTEM.
RICE UNIV., HOUSTON, TEX., PH. D. THESIS (1963) 202 PP
(ABSTR. IN DISSERTATION ABSTR. VOL. 24, 3247-48,
FEB 1964) (AVAIL. UNIVERSITY MICROFILMS, ANN ARBOR,
MICH., ORDER NO. 63-7161, MF $2.75, XEROX $9.25)

VISCOSITY (GAS) (283 TO 408 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES), GRAPH

206 GIDDINGS,J.G. KAO,J.T.F. KOBAYASHI,R.
DEVELOPMENT OF A HIGH-PRESSURE CAPILLARY-TUBE VISCOMETER AND
ITS APPLICATION TO METHANE, PROPANE, AND THEIR MIXTURES IN THE
GASEOUS AND LIQUID REGIONS.
J. CHEM. PHYS. VOL 45, NO. 2, 578-86 (JULY 1966)

VISCOSITY (GAS) (283 TO 411 DEGREES K AND 1 TO
544 ATM)
EXPERIMENTAL - TABLE (70 VALUES), GRAPH

207 GIDDINGS,J.G. KOBAYASHI,R.
CORRELATION OF THE VISCOSITY OF LIGHT PARAFFIN HYDROCARBONS AND
THEIR MIXTURES IN THE LIQUID AND GASEOUS REGIONS.
J. PETROL.TECHNOL. VOL 16, 679-82 (JUN 1964)

VISCOSITY (GAS) (283 TO 408 DEGREES K)
CORRELATION - GRAPHS

208 GOLUBEV,I.F.
A BICALORIMETER FOR MEASURING THE THERMAL CONDUCTIVITY OF GASES
AND LIQUIDS AT HIGH PRESSURES AND VARIOUS TEMPERATURES.
TEPLOENERGETIKA VOL 10, 78-82 (DEC 1963) (IN RUSSIAN)

THERMAL CONDUCTIVITY (GAS) (213 TO 385 DEGREES K AND
1 TO 600 ATM)
EXPERIMENTAL - TABLE (70 VALUES), EQUATIONS, APPARATUS

209 GORDON,A.R. BARNES,C.
METHANE EQUILIBRIA FROM ABSOLUTE ENTROPIES, WITH A NOTE ON
THE USE OF THE EHRENFEST SYMMETRY NUMBER.
J. PHYS. CHEM. VOL 36, 2601-09 (1932)

ENTROPY, SPECIFIC HEAT (CONSTANT PRESSURE) (GAS)
(300 TO 1200 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (50 VALUES)

210 GRACE,J.D. KENNEDY,G.C.
THE MELTING CURVE OF FIVE GASES TO 30 KB.
J. PHYS. CHEM. SOLIDS VOL. 28, PP. 977-82 (1967)

MELTING CURVE, ISOTHERMAL COMPRESSIBILITY (SOLID)
(210 TO 390 DEGREES K)
EXPERIMENTAL - GRAPHS

211 GRILLY,E.R.
RELATIONSHIPS BETWEEN TRANSPORT PROPERTIES OF GASES.
AM. J. PHYS. VOL. 20, 447-50 (1952)

THERMAL CONDUCTIVITY, VISCOSITY, SPECIFIC HEAT (V=CONSTANT), PRANDTL NUMBER (GAS) (113 TO 380 DEGREES K)
CALCULATION - GRAPHS

212 GROTH,W. IHLE,H. MURRENHOFF,A.
BESTIMMUNG DER TEMPERATURABHANGIGKEIT DER DAMPFDRUCKVERHALTNISSE.
DETERMINATION OF THE TEMPERATURE DEPENDENCE OF VAPOR PRESSURE.
Z. NATURFORSCH. VOL 9A, 805-6 (1954)

VAPOR PRESSURE (LIQUID)
THEORETICAL - EQUATION

213 GUERECA,R.A. RICHARDSON,H.P. GORDON,J.L. ET AL.
THERMOPHYSICAL PROPERTIES OF SELECTED GASES BELOW 300 DEGREES K.
BUREAU OF MINES, AMARILLO, TEX. HELIUM RESEARCH CENTER, INFORM. CIRC. NO. 8317 (1967) 210 PP

DENSITY (GAS) (112 TO 293 DEGREES K), DENSITY (LIQUID) (111 DEGREES K), DENSITY(SOLID)(90 DEGREES K), VISCOSITY (GAS) (90 TO 400 DEGREES K), THERMAL CONDUCTIVITY (GAS)(90 TO 390 DEGREES K), SPECIFIC HEAT (SOLID) (10 TO 87 DEGREES K), SPECIFIC HEAT (SAT. LIQUID) (95 TO 190 DEGREES K), SPECIFIC HEAT (P = CONSTANT) (GAS)(73 TO 300 DEGREES K) AND (V = CONSTANT) (GAS) (83 TO 278 DEGREES K), VAPOR PRESSURE (LIQUID) (75 TO 191 DEGREES K), DIELECTRIC CONSTANT (GAS) (273 DEGREES K), DIELECTRIC CONSTANT LIQUID) (111.7 DEGREES K) NORMAL BOILING POINT, MELTING TEMPERATURE (1 ATM), CRITICAL TEMPERATURE, PRESSURE AND DENSITY, TRIPLE POINT TEMPERATURE, PRESSURE AND DENSITY
COMPILATION - TABLES (200 VALUES), GRAPHS
DATA FROM REFERENCES 122, 186, 265, 273, 274, 275, 276, 300, 303, 351, 385, 401, 433, 602, 643

214 GUGGENHEIM,E.A.
THE PRINCIPLE OF CORRESPONDING STATES.
J. CHEM. PHYS. VOL. 13, NO. 7, 253-61 (1945)

CORRESPONDING STATES THEORY, DENSITY (SAT. LIQUID, SAT. VAPOR), VAPOR PRESSURE (LIQUID), ENTROPY OF VAPORIZATION AND OF FUSION, COEFFICIENT OF THERMAL EXPANSION, SURFACE TENSION
THEORETICAL - EQUATIONS

215 GUGGENHEIM,E.A.
VIRIAL COEFFICIENTS AND CORRESPONDING STATES OF GASES.
REVS. PURE APPL. CHEM. (AUSTRALIA) VOL. 3, NO. 1, 1-24 (1953)

SECOND VIRIAL COEFFICIENT (GAS) (286 TO 573 DEGREES K)
THEORETICAL - EQUATIONS, GRAPHS

216 GUGGENHEIM,E.A. MCGLASHAN,M.L.
CORRESPONDING STATES IN MIXTURES OF SLIGHTLY IMPERFECT GASES.
PROC. ROY. SOC. (LONDON) VOL. A206, 448-63 (1951)

SECOND VIRIAL COEFFICIENT (GAS) (287 TO 477 DEGREES K),
CORRESPONDING STATES PRINCIPLE
THEORETICAL - GRAPH

217 GUNN,R.D. CHUEH,P.L. PRAUSNITZ,J.M.
INVERSION TEMPERATURES AND PRESSURES FOR CRYOGENIC GASES AND THEIR MIXTURES.
CRYOGENICS VOL 6, NO. 6, 324-9 (DEC 1966)

JOULE THOMSON INVERSION CURVE (GAS)(170 TO 900 DEGREES K AND 90 TO 520 ATM)
CORRELATION - EQUATIONS, GRAPH

218 GYOROG,D.A. OBERT,E.F.
A GENERALIZED VIRIAL EQUATION OF STATE DERIVED FROM EXPERIMENTAL DATA.
A.I.CH.E. JOURNAL VOL 10, NO. 5, 625-31 (SEPT 1964)

SECOND, THIRD, AND FOURTH VIRIAL COEFFICIENTS (GAS) (180 TO 900 DEGREES K), ZERO-PRESSURE JOULE THOMSON COEFFICIENTS (GAS) (190 TO 450 DEGREES K)
THEORETICAL - EQUATIONS, GRAPHS, TABLE (18 VALUES)

219 GYOROG,D.A. OBERT,E.F.
VIRIAL COEFFICIENTS FOR ARGON, METHANE, NITROGEN AND XENON.
A.I.CH.E. JOURNAL VOL 10, NO. 5, 621-25 (SEPT 1964)

SECOND, THIRD AND FOURTH VIRIAL COEFFICIENTS (GAS) (200 TO 500 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (21 VALUES)

220 HADDEN,S.T.
VOLUME-ENERGY RELATIONS IN LIQUIDS AT 0 DEGREES K FROM EQUATIONS OF STATE.
J. PHYS. CHEM. VOL. 70, NO. 10, 3351-3 (OCT 1966)

SPECIFIC VOLUME, COHESIVE ENERGY (LIQUID) (0 DEGREES K)
THEORETICAL - TABLE (2 VALUES), EQUATIONS

221 HADDEN,S.T.
A NEW CORRELATION FOR THE ... SURFACE TENSION OF HYDROCARBONS.
HYDROCARBON PROCESS. VOL. 45, NO. 10, 161-4 (OCT 1966)

SURFACE TENSION (70 TO 191 DEGREES K)
COMPILATION - NOMOGRAM

222 HAGGENMACHER,J.E.
AN EQUATION FOR THE LINE OF SATURATION OF LIQUIDS AND VAPORS.
J. AM. CHEM. SOC. VOL. 68, 1123-6 (JUN 1946)

VAPOR PRESSURE (LIQUID), SPECIFIC VOLUME (SAT. LIQUID AND SAT. VAPOR)
THEORETICAL - EQUATIONS

223 HALFORD,J.O. MILLER,G.A.
STANDARD HEAT CAPACITIES OF GASEOUS METHANOL, ETHANOL, METHANE AND ETHANE AT 279 DEGREES K BY THERMAL CONDUCTIVITY.
J. PHYS. CHEM. VOL 61, 1536-9 (NOV 1957)

SPECIFIC HEAT (V = CONSTANT) (GAS) (279 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE)

224 HAMANN,S.D.
A CORRESPONDING STATES TREATMENT OF THE SPEED OF SOUND IN SIMPLE LIQUIDS.
AUSTRALIAN J. CHEM. VOL. 13, 325-31 (1960)

VELOCITY OF SOUND (LIQUID) (103 TO 112 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH

225 HAMRIN,C.E. THODOS,G.
DENSITY. REDUCED-STATE CORRELATIONS FOR THE INERT GASES.
AM. INST. CHEM. ENGRS. J. VOL. 4, NO. 4, 480-84 (DEC 1958)

DENSITY (SAT. VAPOR)(95 TO 114 DEGREES K), DENSITY (GAS) (210 TO 917 DEGREES K)
CORRELATION - GRAPH

226 HANSEN,R.E.
CRITICAL TEMPERATURE AND THE EQUATION OF STATE.
CHEM. ENG. PROGR. VOL 60, NO. 4, 49-52 (1964)

EQUATION OF STATE (GAS)
THEORETICAL - EQUATION, TABLE OF COEFFICIENTS

227 HARASIMA,A.
SURFACE ENERGIES FOR SEVERAL LIQUIDS.
J. PHYS. SOC. JAPAN VOL 22, NO. 1, 334 (JAN 1967)

SURFACE ENERGY, INTERMOLECULAR POTENTIAL (LIQUID)
THEORETICAL - EQUATIONS, TABLE (4 VALUES)

228 HARKER,Y.D. BRUGGER,R.M.
INVESTIGATION OF THE LOW-TEMPERATURE PHASE TRANSITION IN SOLID METHANE BY SLOW NEUTRON INELASTIC SCATTERING.
J. CHEM. PHYS. VOL 46, NO. 6, 2201-8 (MAR 1967)

SOLID-SOLID PHASE TRANSITIONS (5 TO 22 DEGREES K)
EXPERIMENTAL - GRAPHS

229 HARMENS,A.
ORTHOBARIC DENSITIES OF LIQUEFIED LIGHT HYDROCARBONS.
CHEM. ENG. SCI. VOL 20, NO. 9, 813-21 (1965)

DENSITY (LIQUID) (97 TO 174 DEGREES K)
CALCULATION - EQUATIONS, TABLE (9 VALUES)

230 HARMENS,A.
ORTHOBARIC DENSITIES OF LIQUEFIED LIGHT HYDROCARBONS.
CHEM. ENG. SCI. VOL. 21, NO. 8, 725-6 (AUG 1966).

DENSITY (LIQUID), CRITICAL TEMPERATURE
CHANGES FOR PREVIOUS PAPER

231 HAWARD,R.N.
MODIFIED VAN DER WAALS EQUATION FOR LIQUIDS.
TRANS. FARADAY SOC. VOL 62, NO. 4, 828-37 (APR 1966)

EQUATION OF STATE, ISOTHERMAL AND ADIABATIC COMPRESSIBILITY (LIQUID)
THEORETICAL - EQUATIONS, GRAPH

232 HAWKINS,G.A.
VIII-BRIEF REVIEW OF AVAILABLE DATA ON THE DYNAMIC VISCOSITY AND THERMAL CONDUCTIVITY FOR TWELVE GASES.
TRANS. AM. SOC. MECH. ENGRS. VOL. 70, 655-59 (1948)

VISCOSITY (GAS) (223 TO 773 DEGREES K AND 1 ATM),
THERMAL CONDUCTIVITY) (GAS) (123 TO 323 DEGREES K AND 1 ATM)
REVIEW - GRAPHS

233 HECHT,G.
ZUR ERWEITERUNG DES KORRESPONDENZPRINZIPS DURCH EINEN EINFACHEN PARAMETER (NERNST - ZAHL).***EXTENSION OF THE CORRESPONDING STATE PRINCIPLE BY A SIMPLE PARAMETER (NERNST NUMBER).
Z. CHEM. VOL 6, NO. 7, 277-8 (1966)

CORRESPONDING STATES THEORY, VAPOR PRESSURE (SOLID, LIQUID)
THEORETICAL - EQUATIONS

234 HECHT,G. HOLSTE,C.
UBER EINEN ZUSAMMENHANG ZWISCHEN KRITISCHEN KOFFFIZIENTEN UND NULLPUNKTVOLUMEN VON FLUSSIGKEITEN. RELATIONSHIP BETWEEN CRITICAL COEFFICIENTS AND ZERO-POINT VOLUME IN LIQUIDS.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. 224, NO. 5/6, 299-304 (1964)

CRITICAL TEMPERATURE, PRESSURE AND DENSITY
DISCUSSION - EQUATIONS, TABLE (3 VALUES)

235 HELLWARTH,R.W.
EFFECT OF MOLECULAR REDISTRIBUTION ON THE NONLINEAR REFRACTIVE INDEX OF LIQUIDS.
PHYS. REV. VOL 152, NO. 1, 156-65 (DEC 1966)

REFRACTIVE INDEX (LIQUID)
THEORETICAL - EQUATIONS, TABLE (1 VALUE)

236 HENNING,M.F. STOCK,A.
SATURATION PRESSURES OF SOME VAPORS BETWEEN 10 DEGREES AND -181 DEGREES.
Z. PHYSIK VOL. 4, 226-44 (1920)

VAPOR PRESSURE (SOLID, LIQUID) (80 TO 111 DEGREES K)
EXPERIMENTAL - TABLE (27 VALUES), EQUATION

237 HERMSEN,R.W. PRAUSNITZ,J.M.
STATISTICAL THERMODYNAMICS OF LIQUID HYDROCARBONS. PART I. PURE COMPONENTS.
CHEM. ENG. SCI. VOL. 21, NO. 9, 791-802 (1966).

CORRESPONDING STATES THEORY, MOLAR VOLUME (LIQUID)
THEORY - EQUATIONS, GRAPH

238 HERZ,W.
UBER DAS B DER VAN DER WAALSCHEN GLEICHUNG. ON THE B IN THE VAN DER WAALS EQUATION.
Z. ELEKTROCHEM. VOL. 29, 527-30 (1923)

EQUATION OF STATE (GAS), CRITICAL TEMPERATURE, PRESSURE AND DENSITY
DISCUSSION - EQUATIONS, TABLE (4 VALUES)

239 HESTERMANS,P. WHITE,D.
THE VAPOR PRESSURE, HEAT OF VAPORIZATION AND HEAT CAPACITY OF METHANE FROM THE BOILING POINT TO THE CRITICAL TEMPERATURE.
J. PHYS. CHEM. VOL. 65, NO. 2, 362 (FEB 1961)

VAPOR PRESSURE (LIQUID) (109 TO 181 DEGREES K), HEAT OF VAPORIZATION (112 TO 185 DEGREES K), HEAT CAPACITY (SAT. LIQUID) (115 TO 187 DEGREES K), ENTROPY (LIQUID, GAS, IDEAL GAS) (100 TO 190 DEGREES K)
EXPERIMENTAL - TABLE (120 VALUES)

240 HEUSE,W.
DIE SPEZIFISCHE WARME VON ARGON UND EINIGEN MEHRATOMIGEN GASEN.
THE SPECIFIC HEAT OF ARGON AND OF SOME POLYATOMIC GASES.
ANN. PHYSIK VOL. 59, 86-94 (1919)

SPECIFIC HEAT (P=CONSTANT) (GAS) (193 TO 289 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES), EQUATION

241 HEUSE,W.
MOLVOLUMEN VON KOHLENWASSERSTOFFEN UND EINIGEN ANDEREN VERBINDUNGEN BEI TIEFEN TEMPERATUR. MOLECULAR VOLUMES OF HYDROCARBONS AND OTHER COMPOUNDS AT LOW TEMPERATURE.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. A147, 266-74 (1930)

MOLAR VOLUME (SOLID) (20 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE), APPARATUS

242 HEUSE,W.
DILATOMETRISCHE BEOBACHTUNG DES UMWANDLUNGSPUNKTES.
DILATOMETRIC OBSERVATION OF THE TRANSITION POINT OF METHANE.
Z. PHYSIK. CHEM. VOL A147, 282-7 (1930)

MOLAR VOLUME (SOLID) (20.11 TO 20.86 DEGREES K), SOLID-SOLID TRANSITION TEMPERATURE
EXPERIMENTAL - TABLES (30 VALUES), GRAPHS

243 HIRSCHFELDER,J.O.
HEAT CONDUCTIVITY IN POLYATOMIC OR ELECTRONICALLY EXCITED GASES.
WISCONSIN UNIV. NAVAL RESEARCH LAB. MADISON (1951) CONTR. NO. N70NR-28511, 15 PP
DDC AD 91 783

PRANDTL NUMBER (GAS) (173 TO 1273 DEGREES K)
CALCULATION - TABLE (5 VALUES)

244 HIRSCHFELDER,J.O. BIRD,R.B. SPOTZ,E.L.
THE TRANSPORT PROPERTIES OF GASES AND GASEOUS MIXTURES.
CHEM. REV. VOL. 44, 205-31 (1949)

VISCOSITY, THERMAL CONDUCTIVITY, SELF-DIFFUSION (GAS)
THEORETICAL - EQUATIONS

245 HIRSCHFELDER,J.O. BIRD,R.B. SPOTZ,E.L.
VISCOSITY AND OTHER PHYSICAL PROPERTIES OF GASES AND GAS MIXTURES.
TRANS. AM. SOC. MECH. ENGRS. VOL. 71, 921-37 (NOV 1949)

VISCOSITY (GAS) (100 TO 1500 DEGREES K)
THEORETICAL - TABLE (17 VALUES), EQUATIONS

246 HIRSCHFELDER,J.O. BIRD,B.R. SPOTZ,E.L.
THE TRANSPORT PROPERTIES FOR NON-POLAR GASES.
J. CHEM. PHYS. VOL. 16, NO. 10, 968-81 (OCT 1948)

VISCOSITY (GAS) (100 TO 1500 DEGREES K)
THEORETICAL - TABLE (17 VALUES), EQUATIONS

247 HIRSCHFELDER,J.O. CURTISS,C.F. BIRD,R.B. SPOTZ,E.L.
THE MOLECULAR THEORY OF GASES AND LIQUIDS.
JOHN WILEY AND SONS, INC., N. Y. (1954)

POTENTIAL FUNCTION, THERMAL CONDUCTIVITY, VISCOSITY, SELF-DIFFUSION, EQUATION OF STATE, ENTHALPY, ENTROPY, CORRESPONDING STATES THEORY, HEAT CAPACITY, COMPRESSIBILITY FACTOR (LIQUID, GAS), SURFACE TENSION
BOOK - EQUATIONS, GRAPHS

248 HIRSCHFELDER,J.O. ROSEVEARE,W.E.
INTERMOLECULAR FORCES AND THE PROPERTIES OF GASES.
J. PHYS. CHEM. VOL. 43, 15-35 (1939)

INTERMOLECULAR POTENTIAL (GAS)
THEORETICAL - EQUATIONS

249 HIRSCHFELDER,J. STEVENSON,D. EYRING,H.
A THEORY OF LIQUID STRUCTURE.
J. CHEM. PHYS. VOL 5, 896-912 (NOV 1937)

LIQUID STRUCTURE, EQUATION OF STATE, PARTITION FUNCTION, VISCOSITY (LIQUID)
THEORETICAL - EQUATIONS, TABLE (COEFFICIENTS FOR EQUATION)

250 HOBSON,M. WEBER,J.A.
THEOREM OF CORRESPONDING STATES APPLIED TO SATURATED LIQUIDS AND VAPORS.
AM. INST. CHEM. ENGRS. J. VOL. 2, NO. 3, 354-59 (SEPT 1956)

COMPRESSIBILITY FACTOR, CORRESPONDING STATES THEORY (SAT. LIQUID, SAT. VAPOR) (90 TO 100 DEGREES K)
CALCULATED - GRAPH, EQUATIONS

251 HOLLEY,C.E. WORLTON,W.J. ZEIGLER,R.K.
COMPRESSIBILITY FACTORS AND FUGACITY COEFFICIENTS CALCULATED FROM THE BEATTIE-BRIDGEMAN EQUATION OF STATE FOR HYDROGEN, NITROGEN, OXYGEN, CARBON DIOXIDE, AMMONIA, METHANE, AND HELIUM.
CALIF. UNIV. LOS ALAMOS SCIENTIFIC LAB., N.M., REPT. LA-2271 (MAR 1959) CONTR. W-7405-ENG.36, 51 PP

COMPRESSIBILITY FACTOR, FUGACITY COEFFICIENTS (GAS) (100 TO 1000 DEGREES K AND 0.1 TO 1000 ATM)
CALCULATION - TABLE (1700 VALUES), EQUATIONS

252 HONIG,R.E. HOOK,H.O.
VAPOR PRESSURE DATA FOR SOME COMMON GASES.
RCA REV. VOL. 21, 360-68 (SEPT 1960)

VAPOR PRESSURE (SOLID, LIQUID) (24 TO 115 DEGREES K)
COMPILATION - TABLE (17 VALUES), GRAPH
DATA FROM REFERENCES 22, 593

253 HOOVER, A.E.
VIRIAL COEFFICIENTS OF METHANE AND ETHANE.
RICE UNIV., HOUSTON, TEX., PH. D. THESIS (1966) 192 PP
AVAIL. UNIV. MICROFILMS, ANN ARBOR, MICH., ORDER NO. 66-10,349

P-V-T DATA, COMPRESSIBILITY FACTOR, SECOND AND THIRD VIRIAL COEFFICIENTS (GAS)(131 TO 273 DEGREES K)
EXPERIMENTAL - TABLES, GRAPHS, EQUATIONS, APPARATUS
-CODED FROM ABSTRACT-

254 HOOVER,A.E. LELAND,T.W.,JR. KOBAYASHI,R.
NEGATIVE THIRD VIRIAL COEFFICIENTS.
J. CHEM. PHYS. VOL 45, NO. 1, 399-400 (JUL 1966)

THIRD VIRIAL COEFFICIENT (GAS)(105 TO 286 DEGREES K)
EXPERIMENTAL - GRAPH

255 HORROCKS,J.K. MCLAUGHLIN,E.
THERMAL CONDUCTIVITY OF SIMPLE MOLECULES IN THE CONDENSED STATE.
TRANS. FARADAY SOC. VOL. 56, 206-12 (1960)

THERMAL CONDUCTIVITY (LIQUID) (93 TO 108 DEGREES K)
THEORETICAL - EQUATIONS

256 HORROCKS,J.K. MCLAUGHLIN,E.
TEMPERATURE DEPENDENCE OF THE THERMAL CONDUCTIVITY OF LIQUIDS.
TRANS. FARADAY SOC. VOL. 59, NO. 488, 1709-16 (1963)

THERMAL CONDUCTIVITY (LIQUID)
THEORETICAL - EQUATIONS, GRAPH

257 HSIEH,JUI SHENG
FOUR-PARAMETER GENERALIZED COMPRESSIBILITY CHARTS FOR NONPOLAR FLUIDS.
J. ENG. IND. VOL 88, NO. 3, 263-73 (AUG 1966)

COMPRESSIBILITY FACTOR (LIQUID, GAS) (287 TO 573 DEGREES K AND 22 TO 368 ATM), CRITICAL CONSTANTS, NORMAL BOILING POINT CORRELATION - GRAPHS, EQUATIONS, TABLE

258 HUANG,E.T.S.
VISCOSITIES AND DENSITIES OF METHANE, PROPANE AND THEIR MIXTURES AT LOW TEMPERATURES AND HIGH PRESSURES
UNIV. OF KANSAS, LAWRENCE, PH. D. THESIS (MAR 1966)
AVAIL. UNIV. MICROFILMS, ANN. ARBOR, MICH., ORDER NO. 66-13037

VISCOSITY (LIQUID, GAS) (103 TO 273 DEGREES K AND 14.7 TO 5000 PSIA), DENSITY (GAS) (133 TO 193 DEGREES K AND 100 TO 10000 PSIA)
EXPERIMENTAL - TABLE (128 VALUES), APPARATUS

259 HUANG,E.T.S. SWIFT,G.W. KURATA,F.
VISCOSITIES OF METHANE AND PROPANE AT LOW TEMPERATURES AND HIGH PRESSURES.
A.I.CH.E. J. VOL. 12, NO. 5, 932-6 (SEP 1966)

VISCOSITY (LIQUID, GAS) (103 TO 273 DEGREES K AND 14.7 TO 5000 PSIA)
EXPERIMENTAL - TABLE (100 VALUES), GRAPH

260 HUETZ,M. AUBERT
THE MEASUREMENT OF SPECIFIC HEATS OF GASES AND VAPORS.
PUBLS. SCI. TECH. MINISTERE AIR (FRANCE) TECH NOTES NO. NT 68
(1957) 182 PP.

SPECIFIC HEAT (P=CONSTANT, V=CONSTANT), SPECIFIC HEAT RATIO
(GAS) (283 TO 301 DEGREES K)
EXPERIMENTAL - GRAPH, EQUATIONS, APPARATUS

261 HUGHES,E.E. LIAS,S.G.
VAPOR PRESSURES OF ORGANIC COMPOUNDS IN THE RANGE BELOW ONE
MILLIMETER OF MERCURY.
NATIONAL BUREAU OF STANDARDS, WASHINGTON, D.C., TECH. NOTE 70
(OCT 1960) 24 PP

VAPOR PRESSURE (SOLID) (48 TO 67 DEGREES K)
COMPILATION - TABLE (7 VALUES)
DATA FROM REFERENCE 593

262 HUJSAK,K.L. FRONING,H.R. GODDIN,C.S.
THE SPECIFIC HEAT OF A NATURAL GAS AND METHANE AT 69 AND
103 ATMOSPHERES.
CHEM. ENG. PROGR. SYMPOSIUM SER. VOL. 59, NO. 44, 88-94
(1963)

SPECIFIC HEAT (P=CONSTANT)(GAS)(243 TO 298 DEGREES K
AND 748 TO 756 MM HG)
EXPERIMENTAL - TABLE (8 VALUES), EQUATION, GRAPHS, APPARATUS

263 HUNTER,M.A.
THE MOLECULAR AGGREGATION OF LIQUEFIED GASES.
J. PHYS. CHEM. VOL. 10, 330-60 (1906)

VAPOR PRESSURE (SOLID, LIQUID) (80 TO 110 DEGREES K),
FREEZING POINT, NORMAL BOILING POINT
EXPERIMENTAL - TABLES (25 VALUES), GRAPH, EQUATION

264 IKENBERRY,L.D. RICE,S.A.
KINETIC THEORY OF DENSE FLUIDS. XIV. EXPERIMENTAL AND
THEORETICAL STUDIES OF THERMAL CONDUCTIVITY IN LIQUID AR, KR,
XE, AND CH4.
J. CHEM. PHYS. VOL. 39, NO. 6, 1561-71 (1963)

THERMAL CONDUCTIVITY (LIQUID) (98 TO 235 DEGREES K
AND 1 TO 500 ATM)
EXPERIMENTAL - TABLE (45 VALUES), GRAPH, EQUATIONS, APPARATUS

265 ISHIDA,Y.
DETERMINATION OF VISCOSITIES AND OF THE STOKES-MILLIKAN LAW
CONSTANT BY THE OIL-DROP METHOD.
PHYS. REV. VOL. 21, 550-63 (1923)

VISCOSITY (GAS)(296 DEGREES K AND 23 TO 43 CM HG)
EXPERIMENTAL - TABLE (1 VALUE), EQUATION, APPARATUS

266 ISHIKAWA,T.
AN EQUATION OF STATE IN ANALYTICAL FORM.
BULL. CHEM. SOC. JAPAN VOL. 26, NO. 2, 78-83 (1953)

EQUATION OF STATE (GAS)
THEORETICAL - EQUATION, TABLE OF COEFFICIENTS

267 IWASAKI,H.
THE VISCOSITY OF METHANE AT HIGH PRESSURES.
KOGYO KAGAKU ZASSHI VOL 62, 918-21 (1959)

VISCOSITY (GAS) (298 TO 348 DEGREES K AND 1 TO 504 ATM)
EXPERIMENTAL - TABLES (80 VALUES), GRAPHS

268 JAGANNATHAN,T.K. VISWANATH,D.S. KULOOR,N.R.
PREDICT ORGANIC LIQUIDS VISCOSITY.
HYDROCARBON PROCESS. PETROL. REFINER VOL. 47, NO. 2, 133-36 (1968)

VISCOSITY (GAS) (300 TO 550 DEGREES K)
CORRELATION - GRAPH, EQUATIONS

269 JAMES,H.M. KEENAN,T.A.
THEORY OF PHASE TRANSITION IN SOLID HEAVY METHANE.
J. CHEM. PHYS. VOL. 31, NO. 1, 12-41 (1959)

CRYSTAL STRUCTURE, SOLID-SOLID PHASE TRANSITIONS
THEORETICAL - EQUATIONS

270 JOFFE,J. DELANEY,E.G.
HEAT CAPACITY RATIOS - 5 HYDROCARBONS.
CHEM. ENG. VOL 65, NO. 6, 138-41 (MAR 1958)

SPECIFIC HEAT RATIO (GAS) (283 TO 978 DEGREES K AND 0 TO 10,000 PSIA)
CALCULATED - GRAPH

271 JOHNS,T.F.
VAPOUR PRESSURE DIFFERENCES BETWEEN SOME OF THE ISOTOPIC SPECIES OF CARBON MONOXIDE, METHANE AND OXYGEN, PART 1. EXPERIMENTAL.
ATOMIC ENERGY RESEARCH ESTABL. (GT. BRIT.) REPT. NO. GP/R 2166 (1957) 53 PP
DDC AD 156 458

VAPOR PRESSURE (SOLID, LIQUID) (81 TO 105 DEGREES K)
EXPERIMENTAL - TABLES (50 VALUES), EQUATIONS

272 JOHNSON,A.I. HUANG,C.J.
THERMAL CONDUCTIVITY CHART FOR GASES.
CHEM. ENG. VOL. 61, NO. 2, 204-5 (1954)

THERMAL CONDUCTIVITY (GAS) (253 TO 588 DEGREES K AND MODERATE PRESSURES)
CORRELATION - GRAPH

273 JOHNSON,V.J.(EDITOR)
A COMPENDIUM OF THE PROPERTIES OF MATERIALS AT LOW TEMPERATURE (PHASE I) PART I. PROPERTIES OF FLUIDS.
NATL. BUR. STANDARDS, CRYOGENIC ENG. LAB., WADD TECH. REPT. 60-56 (1960) WADD CONTR. NO. AF 33(616)-58-4. 489 PP
DDC AD 249 777

DENSITY (SOLID, LIQUID, GAS), THERMAL CONDUCTIVITY (SOLID, LIQUID, GAS), SPECIFIC HEAT (P=CONSTANT)(SOLID, LIQUID, SAT. LIQUID, GAS), SPECIFIC HEAT (V=CONSTANT)(SOLID, GAS), ENTHALPY (SAT. LIQUID, SAT. VAPOR), HEATS OF SOLID TRANSITION, FUSION AND VAPORIZATION, MELTING CURVE, VAPOR PRESSURE (SOLID, LIQUID), DIELECTRIC CONSTANT (LIQUID), SURFACE TENSION, VISCOSITY (LIQUID, GAS)
COMPILATION - TABLES (500 VALUES), GRAPHS

274 JOHNSTON,D.R. OUDEMANS,G.J. COLE,R.H.
DIELECTRIC CONSTANTS OF IMPERFECT GASES. I. HELIUM, ARGON, NITROGEN, AND METHANE.
J. CHEM. PHYS. VOL. 33, NO. 5, 1310-17 (NOV 1960)

DIELECTRIC CONSTANT (GAS) (242 AND 315 DEGREES K)
EXPERIMENTAL - EQUATION, TABLE OF COEFFICIENTS, APPARATUS

275 JOHNSTON,H.L. GRILLY,E.R.
THE THERMAL CONDUCTIVITIES OF EIGHT COMMON GASES BETWEEN 80 DEGREES AND 380 DEGREES K.
J. CHEM. PHYS. VOL. 14, NO. 4, 233-8 (APR 1946)

THERMAL CONDUCTIVITY (GAS) (97 TO 384 DEGREES K)
EXPERIMENTAL - TABLE (18 VALUES), APPARATUS

276 JOHNSTON,H.L. MC CLOSKEY,K.E.
VISCOSITIES OF SEVERAL COMMON GASES BETWEEN 90 DEGREES K AND ROOM TEMPERATURE.
J. PHYS. CHEM. VOL. 44, 1038-58 (1940)

VISCOSITY (GAS) (90 TO 300 DEGREES K)
EXPERIMENTAL - TABLE (53 VALUES), GRAPH, APPARATUS

277 JONES,M.L.
THERMODYNAMIC PROPERTIES OF METHANE AND NITROGEN AT LOW TEMPERATURES AND HIGH PRESSURES.
MICHIGAN UNIV., ANN ARBOR, PH. D. THESIS (1962) 182 PP (ABSTR. IN DISSERTATION ABSTR. VOL. 23, 173, 1962) (AVAIL. UNIV. MICROFILMS, ANN ARBOR, MICH., ORDER NO. 62-2747)

HEAT CAPACITY (CONSTANT PRESSURE) (LIQUID, GAS) (123 TO 280 DEGREES C AND 149 TO 2000 PSIA), HEAT OF VAPORIZATION (LIQUID) (168 TO 188 DEGREES K), ENTHALPY (SATURATED LIQUID AND VAPOR) (98 TO 168 DEGREES K), ENTHALPY (LIQUID, GAS) (98 TO 283 DEGREES K AND 226 TO 391 PSIA), EQUATION OF STATE (LIQUID, GAS)
EXPERIMENTAL - TABLES (1100 VALUES), GRAPHS, EQUATIONS

278 JONES,M.L. MAGE,D.T. FAULKNER,R.C. KATZ,D.L.
MEASUREMENT OF THE THERMODYNAMIC PROPERTIES OF GASES AT LOW TEMPERATURE AND HIGH PRESSURE-METHANE.
CHEM. ENG. PROGR. SYMP. SER. NO. 44, VOL. 59, 52-60 (1963)

HEAT CAPACITY (LIQUID, GAS) (116 TO 283 DEGREES K AND 150 TO 2000 LB/SQ IN), HEAT OF VAPORIZATION (LIQUID) (171 TO 188 DEGREES K)
EXPERIMENTAL - TABLE (100 VALUES), GRAPHS, EQUATIONS, APPARATUS

279 JOSSI,J.A. STIEL,L.I. THODOS,G.
THE VISCOSITY OF PURE SUBSTANCES IN THE DENSE GASEOUS AND LIQUID PHASES.
AM. INST. CHEM. ENGRS. JOURNAL VOL. 8 NO. 1, 59-63 (MAR 1962)

VISCOSITY (LIQUID, GAS)(123 TO 408 DEGREES K)
CORRELATION - EQUATIONS, GRAPH

280 JUSTI,E.
SPEZIFISCHE WARME, ENTHALPIE, ENTROPIE UND DISSOZIATION TECHNISCHER GASE. SPECIFIC HEAT, ENTHALPY, ENTROPY AND DISSOCIATION OF TECHNICAL GASES.
FEUERUNGSTECHNIK VOL. 26, 313-22 (1938)

SPECIFIC HEAT (P=CONSTANT), ENTHALPY, ENTROPY (GAS) (298 TO 1273 DEGREES K)
THEORETICAL - EQUATION

281 KAGANER,M.G.
JOULE-THOMSON EFFECT AND THE EQUATION OF STATE OF GASES WITH NON-POLAR MOLECULES.
ZHUR. FIZ. KHIM. VOL. 30, 2691-2704 (1956) (IN RUSSIAN)

JOULE-THOMSON EFFECT, EQUATION OF STATE (GAS)
THEORETICAL - EQUATIONS

282 KANDA,E.
DETERMINATION OF THE SECOND VIRIAL COEFFICIENT AND THE VAN DER WAALS FORCE OF METHANE.
SCI. REPT. RES. INST. TOHOKU UNIV. SER. A VOL 1, 157-60 (1949)

ISOTHERMAL EXPANSION (GAS) (184 TO 318 DEGREES K AND 551 TO 1257 MM HG), SECOND VIRIAL COEFFICIENT (GAS) (150 TO 450 DEGREES K), LATTICE ENERGY, MOLECULAR VOLUME (SOLID) (0 DEGREES K)
EXPERIMENTAL - TABLES (18 VALUES), EQUATIONS

283 KANNULUIK,W.G. DONALD,H.B.
THE PRESSURE DEPENDENCE OF THE THERMAL CONDUCTIVITY OF POLYATOMIC GASES AT 0 DEGREE C.
AUSTRALIAN J. SCI. RES. VOL. A3, 417-27 (1950)

THERMAL CONDUCTIVITY (GAS)(273 DEGREES K AND 2 TO 94 CM HG)
EXPERIMENTAL - TABLE (11 VALUES), GRAPH, EQUATION, APPARATUS

284 KARAPET#YANTS,M.KH. YEN,K-S
TEMPERATURE DEPENDENCE OF VISCOSITY OF N-ALKANES.
ZH. FIZ. KHIM. VOL. 37, NO. 9, 2041-47 (1963) (IN RUSSIAN)

VISCOSITY (GAS) (91 TO 115 DEGREES K)
CALCULATED - GRAPH

285 KARWAT,E.
DER DAMPFDRUCK DES FESTEN CHLORWASSERSTOFFS, METHANS UND AMMONIAKS. THE VAPOR PRESSURE OF SOLID HYDROGEN CHLORIDE, METHANE AND AMMONIA.
Z. PHYSIK. CHEM. LEIPZIG VOL. 112, 486-90 (1924)

VAPOR PRESSURE (SOLID) (77 TO 87 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES), EQUATION

286 KATAOKA,Y. MATSUDA,H.
LAW OF CORRESPONDING STATES IN THE PHASE TRANSFORMATIONS OF SOLID CH4 AND CD4.
J. PHYS. SOC. JAPAN VOL 21, NO. 8, 1618-9 (AUG 1966)

SOLID-SOLID PHASE TRANSITION (10 TO 90 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH

287 KATZ,L. LEVERTON,W.F. WOODS,S.B.
THE RESONANCE METHOD OF MEASURING THE RATIO OF THE SPECIFIC HEATS OF A GAS, CP/CV. VI. CARBON DIOXIDE, NITROUS OXIDE, AND METHANE.
CAN. J. RES. VOL 27, 39-44 (1949)

SPECIFIC HEAT RATIO (GAS) (298 DEGREES K AND 1.5 TO 5.3 ATM)
EXPERIMENTAL - TABLE (9 VALUES), GRAPH, EQUATION

288 KAZARNOVSKII,YA.S. LEVCHENKO,G.T.
COMPRESSIBILITY OF METHANE AND METHANE-AMMONIA MIXTURES AT HIGH TEMPERATURES AND PRESSURES.
ZH. FIZ. KHIM. VOL 18, 380-2 (1944) (IN RUSSIAN)
TRANSL. AVAIL. CFSTI ORDER NO. 61-18226 4 PP

P-V-T DATA (GAS) (473 TO 573 DEGREES K AND 86 TO 1400 ATM)
EXPERIMENTAL - TABLE (25 VALUES)

289 KAZAVCHINSKII,YA.Z.
A METHOD DETERMINING THE CONSTANT VIRIAL FORM OF THE EQUATION STATE OF REAL GASES.
AKAD. NAUK S.S.S.R. DOKLADY VOL. 95, 1005-8 (1954) (IN RUSSIAN)

EQUATION OF STATE (GAS)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

290 KEESOM,W.H. BIJL,A. MONTE,L.A.J.
LES DIAGRAMMES W LOG P DIE METHANE ET DE L ETHYLENE. THE ENTHALPY-LOG P DIAGRAM OF METHANE AND ETHYLENE.
APPL. SCI. RESEARCH VOL. A3, 261-71 (1953)

ENTHALPY (LIQUID, GAS) (85 TO 475 DEGREES K), NORMAL BOILING POINT, CRITICAL TEMPERATURE AND PRESSURE
CALCULATION - EQUATIONS, GRAPH

291 KEESOM,W.H. HOUTHOFF,D.J.
DIAGRAMMES ENTROPIQUE ET MOLLIER DU METHANE. ENTROPIE AND MOLLIER DIAGRAMS FOR METHANE.
COMMUNS. PHYS. LAB. UNIV. LEIDEN SUPPL. NO. 65A (1926)
REPRINTED FROM BULL. MENS. INST. INTERN. FROID, TRAVAUX DE LA COMM. KAMERLINGH ONNES ANNEXES (2 SERIE) NO. 1, (JUL 1926)

ENTROPY, ENTHALPY, SPECIFIC VOLUME, SPECIFIC HEAT (P=CONSTANT) (LIQUID, GAS)(100 TO 270 DEGREES K AND 0.4 TO 70 ATM), CRITICAL TEMPERATURE AND PRESSURE
CALCULATION - EQUATIONS, GRAPHS

292 KELLEY,K.K.
CONTRIBUTIONS TO THE DATA ON THEORETICAL METALLURGY. III. FREE ENERGIES OF VAPORIZATION AND VAPOR PRESSURES OF INORGANIC SUBSTANCES.
U.S. BUREAU OF MINES BULLETIN 383 (1935)

SPECIFIC HEAT (P=CONSTANT)(SOLID, LIQUID, GAS)(90.6 AND 111.7 DEGREES K),HEAT OF FUSION, HEAT OF VAPORIZATION, VAPOR PRESSURE (SOLID, LIQUID)
COMPILATION - EQUATIONS, TABLE (4 VALUES)

293 KELLEY,K.K.
CONTRIBUTIONS TO THE DATA ON THEORETICAL METALLURGY. X. HIGH-TEMPERATURE HEAT-CONTENT, HEAT-CAPACITY, AND ENTROPY DATA FOR INORGANIC COMPOUNDS.
U.S. BUREAU OF MINES BULLETIN 476 (1949)

ENTHALPY, ENTROPY, SPECIFIC HEAT (P=CONSTANT) (GAS) (400 TO 1500 DEGREES K)
COMPILATION - TABLE (24 VALUES), EQUATION

294 KELLEY,K.K. KING,E.G.
CONTRIBUTIONS TO THE DATA ON THEORETICAL METALLURGY. XIV. ENTROPIES OF THE ELEMENTS AND INORGANIC COMPOUNDS.
U.S. BUREAU OF MINES BULLETIN 592 (1961) 149 P.

HEAT CAPACITY (SOLID, LIQUID, GAS)(10 TO 298 DEGREES K), ENTROPY (GAS)(298 DEGREES K), HEATS OF FUSION AND VAPORIZATION
CALCULATED - TABLES (10 VALUES), EQUATIONS

295 KERRISK,J.F. ROGERS,J.D. HAMMEL,E.F.
TRANSPORT PROPERTIES OF HE3, HE4, H2, D2, T2, AND NE IN THE LIQUID STATE ACCORDING TO THE QUANTUM MECHANICAL PRINCIPLE OF CORRESPONDING STATES.
ADVANCES IN CRYOGENIC ENGINEERING VOL. 9, 188-96 (PROC. 1963 CRYOGENIC ENG. CONF.) PLENUM PRESS, NEW YORK (1964) PAPER D-4

VISCOSITY (LIQUID)(90 TO 103 DEGREES K), THERMAL CONDUCTIVITY (LIQUID) (103 TO 163 DEGREES K), PRINCIPLE OF CORRESPONDING STATES
THEORETICAL - EQUATIONS, GRAPHS

296 KESSELMAN,P.M.
CALCULATION OF THE THERMAL PROPERTIES OF REAL GASES AT HIGH TEMPERATURES.
HIGH TEMP. VOL 2, NO. 6, 791-5 (NOV-DEC 1964) TRANSL. OF TEPLOFIZ. VYSOKIKH TEMPERATUR, AKAD. NAUK SSSR VOL 2, NO. 6, 879-83 (NOV-DEC 1964)

SECOND AND THIRD VIRIAL COEFFICIENTS (GAS)(170 TO 14,800 DEGREES K)
CALCULATION - EQUATIONS, GRAPH

297 KESTIN,J. LEIDENFROST,W.
THE EFFECT OF MODERATE PRESSURES ON THE VISCOSITY OF FIVE GASES.
THERMODYNAMIC AND TRANSPORT PROPERTIES OF GASES, LIQUID AND SOLIDS, 321-38, AMER. SOC. MECH. ENGRS., HEAT TRANSFER DIVISION, PUBL. BY MCGRAW-HILL, NEW YORK (1959)

VISCOSITY (GAS)(292 TO 296 DEGREES K AND 1 TO 78 ATM)
EXPERIMENTAL - TABLE (7 VALUES), GRAPH, EQUATION, APPARATUS

298 KEYES,F.G.
THE SUTHERLAND VISCOSITY CONSTANT AND ITS RELATION TO THE MOLECULAR POLARIZATION.
Z. PHYSIK. CHEM. (LEIPZIG) VOL. 129, 709-14 (1927)

VISCOSITY (GAS)
THEORETICAL

299 KEYES,F.G.
NOTE ON A CORRESPONDING-STATES EQUATION OF PRACTICAL INTEREST FOR GENERAL PHYSICO-CHEMICAL COMPUTATIONS.
J. AM. CHEM. SOC. VOL. 60, 1761-64 (1938)

EQUATION OF STATE (GAS)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

300 KEYES,F.G.
THE HEAT CONDUCTIVITY, VISCOSITY, SPECIFIC HEAT AND PRANDTL NUMBERS FOR THIRTEEN GASES.
MASS. INST. TECHNOL., CAMBRIDGE, PROJECT SQUID TECH. REPT. NO. 37 (APR 1952) CONTR. NO. N5-ORI-07855, NR 090-121/9-14-50 33 PP

THERMAL CONDUCTIVITY, VISCOSITY, SPECIFIC HEAT (P=CONSTANT), PRANDTL NUMBER (GAS)(73 TO 1273 DEGREES K)
EXPERIMENTAL - TABLE (80 VALUES), GRAPH, EQUATION

301 KEYES,F.G.
THERMAL CONDUCTIVITIES FOR SEVERAL GASES WITH A DESCRIPTION OF NEW MEANS FOR OBTAINING DATA AT LOW TEMPERATURES AND ABOVE 500 DEGREES C.
MASS. INST. TECHNOL., CAMBRIDGE, PROJ. SQUID TECH. MEMO. NO. MIT-1 (OCT 1952) DDC AD 5117

THERMAL CONDUCTIVITY (GAS) (331 TO 575 DEGREES K AND 1 TO 60 ATM)
EXPERIMENTAL - TABLE (19 VALUES), APPARATUS

302 KEYES,F.G.
THERMAL CONDUCTIVITY OF GASES.
TRANS. AM. SOC. MECH. ENGRS. VOL. 76, 809-16 (1954)

THERMAL CONDUCTIVITY (GAS)(323 TO 523 DEGREES K AND 0 TO 60 ATM)
EXPERIMENTAL - TABLE (19 VALUES), EQUATION, APPARATUS

303 KEYES,F.G.
THERMAL CONDUCTIVITY OF GASES.
TRANS. AM. SOC. MECH. ENGRS. VOL. 77, 1395 (1955)

THERMAL CONDUCTIVITY (GAS)(120 TO 273 DEGREES K AND 1 TO 9 ATM)
EXPERIMENTAL - TABLE (5 VALUES)

304 KEYES,F.G.
SUMMARY OF MEASURED THERMAL CONDUCTIVITIES AND VALUES OF VISCOSITIES.
TRANSPORT PROPERTIES IN GASES, 51-4, PROC. OF THE SECOND BIENNIAL GAS DYNAMICS SYMPOSIUM, NORTHWESTERN UNIVERSITY PRESS, EVANSTON, ILL. (1958)

THERMAL CONDUCTIVITY (GAS, LIQUID)(95 TO 573 DEGREES K)
DISCUSSION - EQUATIONS

305 KEYES,F.G. BURKS,H.G.
THE ISOMETRICS OF GASEOUS METHANE.
J. AM. CHEM. SOC. VOL. 49, 1403-10 (JUN 1927)

P-V-T DATA (GAS) (273 TO 473 DEGREES K AND 32 TO 254 ATM)
EXPERIMENTAL - TABLE (40 VALUES), EQUATIONS

306 KEYES,F.G. ONCLEY,J.L.
THE RELATION BETWEEN THE DIELECTRIC CONSTANTS OF SOME COMPRESSED GASES AND THE DENSITY.
CHEM. REVS. VOL. 19, NO. 3, 195-212 (1936)

DIELECTRIC CONSTANT, DENSITY (GAS) (273 AND 373 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH

307 KEYES,F.G. SMITH,L.B. JOUBERT,D.B.
THE EQUATION OF STATE FOR METHANE GAS PHASE.
J. MATH. PHYS. VOL 1, 191-210 (1922)

EQUATION OF STATE, P-V-T DATA (GAS) (273 TO 573 DEGREES K AND 36 TO 322 ATM)
EXPERIMENTAL - TABLE (40 VALUES), EQUATION, GRAPH

308 KEYES,F.G. TAYLOR,R.S. SMITH,L.B.
THE THERMODYNAMIC PROPERTIES OF METHANE.
J. MATH. AND PHYS. VOL. 1, 211-42 (1922)

VAPOR PRESSURE (LIQUID), DENSITY (SAT. LIQUID AND SAT. VAPOR) (95 TO 191 DEGREES K), HEAT OF VAPORIZATION (100 TO 165 DEGREES K), NORMAL BOILING POINT, CRITICAL TEMPERATURE
EXPERIMENTAL - TABLE (100 VALUES), EQUATIONS, GRAPHS, APPARATUS

309 KHARBANDA,OM.P.
THERMAL CONDUCTIVITY CHART FOR GASES.
CHEM. ENG. VOL. 62, SERIES 7, 236 (1955)

THERMAL CONDUCTIVITY (GAS)(290 TO 1380 DEGREES K AND 1 ATM)
COMPILATION - NOMOGRAPH

310 KIELICH,S.
THE EQUATION OF STATE OF MULTIPOLAR GASES.
PHYSICA VOL 31, NO. 4, 444-60 (APR 1965)

EQUATION OF STATE, SECOND VIRIAL COEFFICIENT (GAS) (143 TO 295 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (4 VALUES)

311 KIELICH,S.
OCTOPOLE MOMENT OF THE METHANE MOLECULE.
ACTA PHYS. POLON. VOL 27, NO. 3, 457-64 (1965)

SECOND VIRIAL COEFFICIENT (GAS) (143 TO 295 DEGREES K)
THEORETICAL - TABLE (4 VALUES), EQUATIONS

312 KIHARA,T.
VIRIAL COEFFICIENTS AND MODELS OF MOLECULES IN GASES.
REV. MOD. PHYS. VOL. 25, NO. 4, 831-43 (OCT 1953)

SECOND VIRIAL COEFFICIENT (GAS)(273 TO 423 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (7 VALUES)

313 KIHARA,T.
DETERMINATION OF INTERMOLECULAR FORCES FROM THE EQUATION OF STATE OF GASES.
J. PHYS. SOC. JAPAN VOL 3, 265-68 (1948)

INTERMOLECULAR POTENTIAL, EQUATION OF STATE (GAS) (273 TO 423 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (COEFFICIENTS FOR THE EQUATION)

314 KIMEL,S. RON,A. HORNIG,D.F.
INTERMOLECULAR POTENTIAL IN SOLID METHANE. I. INFLUENCE ON THE VIBRATIONAL SPECTRUM AND THE CRYSTAL STRUCTURE.
PRINCETON UNIV., N. J., TECH. REPT. NO. 13 (FEB 1963)
CONTR. NO. NONR-185827, 17 PP
DDC AD 400 430

CRYSTAL STRUCTURE (SOLID), POTENTIAL FUNCTION
CALCULATION - TABLES, GRAPHS, EQUATIONS

315 KIMEL,S. RON,A. HORNIG,D.F.
INTERMOLECULAR POTENTIAL IN SOLID METHANE. II. COHESIVE ENERGY, CRYSTAL STRUCTURE, AND PHASE TRANSITION.
PRINCETON UNIV., PRINCETON, N.J., TECH. REPT. NO. 16 (JUNE 1963),
CONTR. NO. NONR 1858(27), DDC AD 419 578

CRYSTAL STRUCTURE, POTENTIAL FUNCTION
THEORETICAL - EQUATIONS, GRAPHS

316 KIMEL,S. RON,A. HORNIG,D.F.
INTERMOLECULAR POTENTIAL IN SOLID METHANE. I. COHESIVE ENERGY AND CRYSTAL STRUCTURE.
J. CHEM. PHYS. VOL. 40, NO. 11, 3351-56 (1964)

INTERMOLECULAR POTENTIAL (SOLID)
THEORETICAL - TABLE OF PARAMETERS, GRAPH, EQUATIONS

317 KISELEV,A.V. LYGINA,I.A.
LATTICE POTENTIAL ENERGY OF NEON, ARGON, KRYPTON, XENON, AND METHANE CRYSTALS.
IZV. AKAD. NAUK SSSR SER. KHIM. NO. 7, 1143-51, 1965 (TRANS. IN BULL. ACAD. SCI. USSSR DIV. CHEM. SCI.) (ORIGINAL IN RUSSIAN)

POTENTIAL FUNCTION (SOLID)
THEORETICAL - EQUATIONS, TABLES

318 KLEIN,M.
A CONTRIBUTION TO THE UNDERSTANDING OF THE EQUATION OF STATE OF GASES AT HIGH TEMPERATURE AND DENSITIES.
ARNOLD ENGINEERING DEVELOPMENT CENTER, ARNOLD AIR FORCE STATION, TENN., REPT. NO. AEDC-TR-67-67 (MAR 1967) CONTR. NO. (40-600)-65-22 86 PP

EQUATION OF STATE, POTENTIAL FUNCTIONS (GAS)
THEORETICAL - EQUATIONS, TABLES OF PARAMETERS

319 KLEMENCIC,I.
EXPERIMENTAL RESEARCHES UPON THE DETERMINATION OF THE DIELECTRIC CONSTANT OF SOME GASES.
PHIL. MAG. VOL. 19, 393-5 (1885)

DIELECTRIC CONSTANT, INDEX OF REFRACTION (GAS) (273 DEGREES K AND 1 ATM)
EXPERIMENTAL - TABLE (2 VALUES)

320 KLEMENCIC,I.
EXPERIMENTALUNTERSUCHUNG UBER DIE DIELEKTRICITATSCONSTANTE EINIGER GASE UND DAMPFE. EXPERIMENTAL INVESTIGATION OF DIELECTRIC CONSTANT OF SOME GASES AND VAPORS.
SITZ. AKAD. WISS. WIEN MATH.-NATURW. KL. VOL. 91, 712-59 (1885)

DIELECTRIC CONSTANT (273 DEGREES K AND 1 ATM)
EXPERIMENTAL - TABLE (1 VALUE), APPARATUS

321 KLIMENKO,A.P. ET AL.
THERMODYNAMIC PROPERTIES OF METHANE.
TR. INST. ISPOLZ. GAZA AKAD. NAUK UKR. SSR, NO. 8, 3-21 (1960) (IN UKRAINIAN)

SPECIFIC VOLUME, ENTHALPY, ENTROPY (SAT. LIQUID, SAT. VAPOR) (93 TO 191 DEGREES K), SPECIFIC VOLUME, ENTHALPY, ENTROPY (GAS) (93 TO 973 DEGREES K AND 0.15 TO 1000 ATM)
CALCULATED - TABLES (3240 VALUES)

322 KLING,G.
THERMODYNAMISCHE MESSUNGEN AN GAS-GEMISCHEN BEI TIEFEN TEMPERATUREN UND HOHEN DRUKEN.
THERMODYNAMIC MEASUREMENTS WITH GASEOUS MIXTURES AT LOW TEMPERATURES AND HIGH PRESSURES.
KALTETECHNIK VOL 17, NO. 6, 174-80 (JUN 1965)

VAPOR PRESSURE (LIQUID) (113 TO 193 DEGREES K)
EXPERIMENTAL - GRAPH, APPARATUS

323 KLIPPING,G. SCHMIDT,F.
TEMPERATURBESTIMMUNG MIT DEM DAMPFDRUCKTHERMOMETER.***
TEMPERATURE MEASUREMENT WITH THE VAPOR PRESSURE THERMOMETER.
KALTETECHNIK VOL 17, NO. 12, 382-84 (DEC 1965)

VAPOR PRESSURE (LIQUID)(90 TO 121 DEGREES K), TRIPLE POINT TEMPERATURE AND PRESSURE, CRITICAL TEMPERATURE AND PRESSURE, NORMAL BOILING POINT
CALCULATED - GRAPH, TABLE

324 KLIPPING,G. SCHMIDT,F.
DAMPFDRUCKTABELLEN TIEFSIEDENDER GASE (IV).***VAPOR PRESSURE TABLES OF LOW BOILING GASES IV. ETHYLENE, METHANE AND XENON.
KALTETECHNIK VOL. 18, NO. 9, DKV ARBEITSBLATT 1-74. (SEP 1966).

VAPOR PRESSURE (LIQUID) (90 TO 120 DEGREES K)
CALCULATION - TABLE (300 VALUES), EQUATIONS

325 KNOBLER,C.M. ABBISS,C.P. PINGS,C.J.
LORENTZ-LORENZ FUNCTIONS FOR SIMPLE MOLECULES IN THE LIQUID AND GASEOUS STATES.
J. CHEM. PHYS. VOL 41, NO. 7, 2200-01 (1964)

LORENTZ-LORENZ FUNCTION (LIQUID, GAS) (91 TO 273 DEGREES K)
EXPERIMENTAL - TABLE (3 VALUES)

326 KOBE,K.A. LYNN,R.E.,JR.
THE CRITICAL PROPERTIES OF ELEMENTS AND COMPOUNDS.
CHEM. REV. VOL. 52, 117-236 (1953)

CRITICAL CONSTANTS
COMPILATION - TABLE (25 VALUES)
DATA FROM REFERENCES 125, 308, 445, 522, 643, 652

327 KOBE,K.A. VON ROSENBERG,H.E.
THE WOHL EQUATION OF STATE APPLIED TO LIGHT HYDROCARBONS.
PETROL. ENGR. VOL 23, C-35-8 (OCT 1951)

EQUATION OF STATE, P-V-T DATA (GAS) (20 TO 245 DEGREES K)
CALCULATED - TABLE (50 VALUES), EQUATIONS

328 KOEHLER,W.F.
THE RATIO OF THE SPECIFIC HEATS OF GASES BY A METHOD OF SELF-SUSTAINED OSCILLATIONS.
J. CHEM. PHYS. VOL. 18, NO. 4, 465-72 (1950)

SPECIFIC HEAT RATIO (GAS) (298 DEGREES K AND 1 ATM)
EXPERIMENTAL - ONE VALUE

329 KOEPPE,W.
VERLAUF DER INVERSIONSKURVE BEI TIEFEN TEMPERATUREN. PATH OF THE INVERSION CURVE AT LOW TEMPERATURES.
MONATSBER. DEUT. AKAD. WISS. BERLIN VOL. 2, 78-86 (1960)

INVERSION CURVE
THEORETICAL - GRAPH, EQUATIONS

330 KOEPPE,W.
ON THE INVERSION CURVE AT LOW TEMPERATURES AND THE THEOREM OF CORRESPONDING STATES.
PROGRESS IN REFRIGERATION SCIENCE AND TECHNOLOGY VOL. 1, 156-63 (PROC. OF 10TH INTERN. CONGR. OF REFRIG., COPENHAGEN, 1959) PERGAMON PRESS (1960)

INVERSION CURVE
THEORETICAL - GRAPHS, EQUATIONS

331 KOEPPE,W.
BEMERKUNGEN ZUR INVERSIONSKURVE. I. ALLGEMEINE BETRACHTUNGEN, INVERSIONSTEMPERATURE. SOME NOTES TO THE INVERSION CURVE. I. GENERAL CONSIDERATIONS, THE INVERSION TEMPERATURE.
KALTETECHNIK VOL. 14, NO. 12, 399-403 (DEC 1962)

INVERSION CURVE
THEORETICAL - GRAPHS, EQUATIONS

332 KOEPPE,W.
DIE FULLMENGE VON DRUCKGASBEHALTERN BEI PLUS 25 DEGREES C(298 DEGREES K). COMPRESSIBILITY FACTOR FOR GASES AT 25 DEGREES C.
KALTETECHNIK VOL 17, NO. 6, DK ARBEITSBLATT 4-19 (JUN 1965)

COMPRESSIBILITY FACTOR (GAS) (298 DEGREES K AND 1 TO 1000 ATM)
COMPILATION - GRAPH

333 KONOWALOW,D.D.
A RELATIONSHIP BETWEEN PITZERS ACENTRIC FACTOR AND THE MORSE INTERMOLECULAR POTENTIAL.
WISCONSIN UNIV., MADISON. THEORETICAL CHEMISTRY INST., REPT. NO. NASA-CR-68754 (JUN 1965) GRANT NO. NSG-275-62 8 PP
NASA N66 35310

POTENTIAL FUNCTION (GAS)
THEORETICAL - EQUATIONS

334 KONOWALOW,D.D.
RELATIONSHIP BETWEEN PITZERS ACENTRIC FACTOR AND THE MORSE INTERMOLECULAR POTENTIAL FUNCTION.
J. CHEM. PHYS. VOL 46, NO. 2, 818-9 (JAN 1967)

POTENTIAL FUNCTION (GAS)
THEORETICAL - EQUATIONS, TABLE (2 VALUES)

335 KONOWALOW,D.D. CARRA,S.
MORSE POTENTIAL FUNCTIONS FOR NONPOLAR GASES.
WISCONSIN UNIV., THEORETICAL CHEM. INST., MADISON, REPT. NO. WIS-TCI (DEC 1964) CONTR. NO. AF 33(657)-7311, 70 PP
DDC AD 610 431

SECOND VIRIAL COEFFICIENT (GAS)(100 TO 623 DEGREES K), VISCOSITY (GAS)(100 TO 400 DEGREES K), POTENTIAL FUNCTION
THEORETICAL - EQUATIONS, GRAPH, TABLE (4 VALUES)

336 KONOWALOW,D.D. CARRA,S.
DETERMINATION AND ASSESSMENT OF MORSE POTENTIAL FUNCTION FOR SOME NONPOLAR GASES.
PHYS. FLUIDS VOL 8, NO. 9, 1585-89 (SEP 1965)

POTENTIAL FUNCTION (GAS)
THEORETICAL - EQUATIONS, TABLE OF CONSTANTS

337 KONOWALOW,D.D. CARRA,S.
CENTRAL POTENTIALS FOR POLYATOMIC MOLECULES. A SURVEY OF MORSE POTENTIALS DETERMINED FROM VISCOSITY AND THE SECOND VIRIAL COEFFICIENT.
WISCONSIN UNIV., MADISON. THEORETICAL CHEMISTRY INST., REPT. NO. WIS-TCI-99, NASA-CR-68409 (JUN 1965) CONTR. NO. AF 33(657)-7311, 14 PP

POTENTIAL FUNCTION (GAS)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

338 KONOWALOW,D.D. CARRA,S.
CENTRAL POTENTIAL FOR POLYATOMIC MOLECULES. I. A SURVEY OF MORSE POTENTIAL DETERMINED SEPARATELY FROM VISCOSITY AND SECOND VIRIAL COEFFICIENT.
NUOVO CIMENTO VOL 44B, NO. 1, 133-9 (JUL 1966)

POTENTIAL FUNCTION (GAS)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

339 KORDBACHEN,R. TIEN,C.
THE EFFECT OF PRESSURE ON THE ENTHALPY OF GASES.
CAN. J. CHEM. ENG. 162-6 (1959)

ENTHALPY (GAS) (294 TO 395 DEGREES K AND 14 TO 204 ATM)
CALCULATION - TABLE (15 VALUES), EQUATIONS, GRAPH

340 KORVING,J. HULSMAN,H. KNAAP,H.F.P. ET AL.
THE INFLUENCE OF A MAGNETIC FIELD ON THE VISCOSITY OF CH4 AND CF4 (ROUGH SPHERICAL MOLECULES).
PHYS. LETTERS, VOL. 17, NO. 1, 33-34 (JUN 1965)

VISCOSITY (GAS) (6 TO 23 MM HG)
EXPERIMENTAL - GRAPH

341 KOTANI,M.
DETERMINATION OF INTERMOLECULAR FORCES FROM TRANSPORT PHENOMENA IN GASES.
PROC. PHYS. MATH. SOC. JAPAN VOL. 24, 76-95 (1942)

POTENTIAL FUNCTION, VISCOSITY (GAS)
THEORETICAL - EQUATIONS, TABLE (15 VALUES)

342 KRUIS,H.A. POPP,L. CLUSIUS,K.
UBER UMWANDLUNGEN IN FESTEN HYDRIDEN UND DEUTERIDEN. ON TRANSITIONS IN SOLID HYDRIDES AND DEUTERIDES.
Z. ELEKTROCHEM. VOL. 43, 664-6 (1937)

TRIPLE POINT TEMPERATURE AND PRESSURE, HEAT OF FUSION, SOLID-SOLID TRANSITION TEMPERATURE, HEAT OF TRANSITION, NORMAL MELTING POINT
EXPERIMENTAL - TABLE (5 VALUES)

343 KUSS,E.
HOCHDRUCKUNTERSUCHUNGEN II. DIE VISKOSITAT VON KOMPRIMIERTEN GASEN. HIGH PRESSURE INVESTIGATIONS II. THE VISCOSITY OF COMPRESSED GASES.
Z. ANGEW. PHYS. VOL 4, NO. 6, 203-07 (1952)

VISCOSITY (GAS) (293 TO 353 DEGREES K AND 1 TO 600 ATM)
EXPERIMENTAL - TABLE (12 VALUES), GRAPH

344 KVALNES,H.M. GADDY,V.L.
THE COMPRESSIBILITY ISOTHERMS OF METHANE AT PRESSURES TO 1000 ATMOSPHERES AND AT TEMPERATURES FROM -70 TO 200 DEGREES.
J. AM. CHEM. SOC. VOL. 53, 394-99 (1931)

P-V-T DATA (GAS) (203 TO 473 DEGREES K AND 0 TO 1000 ATM)
EXPERIMENTAL - TABLE (220 VALUES), GRAPH

345 LACAM,A.
VITESSE DES ULTRASONS DANS LE METHAN JUSQU DES PRESSIONS VOISINES DE 950 ATM. VELOCITY OF ULTRASOUND IN METHANE UP TO PRESSURES NEAR 950 ATM.
J. PHYS. RADIUM VOL. 14, NO. 6, 426-7 (1953)

VELOCITY OF SOUND (GAS) (298 TO 323 DEGREES K AND 90 TO 950 ATM)
EXPERIMENTAL - GRAPH

346 LACAM,A.
DISPERSION DE LA VITESSE DES ULTRASONS INDUITE PAR DES PRESSONS ELEVEES DANS LA METHANE. DISPERSION OF THE SPEED OF SOUND IN METHANE INDUCED BY ELEVATED PRESSURES.
J. PHYS. RADIUM VOL. 15, 381-2 (1954)

VELOCITY OF SOUND (GAS) (298 TO 323 DEGREES K AND 70 TO 1000 ATM)
EXPERIMENTAL - GRAPH

347 LACAM,A.
VARIATIONS DE LA VITESSE DES ULTRASONS DANS LE METHANE EN FONCTION DE LA TEMPERATURE ET DE LA PRESSION.***VARIATIONS OF VELOCITY OF SOUND THROUGH METHANE AS A FUNCTION OF TEMPERATURE AND PRESSURE.
J. PHYS. RADIUM VOL 16, 72-3 (JAN 1955)

VELOCITY OF SOUND (GAS) (298 TO 473 DEGREES K AND 100 TO 1000 ATM)
CALCULATED - GRAPHS, EQUATION, TABLE OF COEFFICIENTS

348 LACAM,A.
ETUDE EXPERIMENTALE DE LA PROPAGATION DES ULTRASONS DANS LES FLUIDES EN FONCTION DE LA PRESSION (1200 ATM) ET DE LA TEMPERATURE (200 DEGREES C). EXPERIMENTAL STUDY OF THE PROPAGATION OF ULTRASONIC WAVES IN FLUIDS AS A FUNCTION OF PRESSURE (1200 ATM) AND TEMPERATURE (200 DEGREES C).
J. RECH. CENTRE NATL. RECH. SCI. LAB. BELLEVUE (PARIS) VOL. 34, 25-56 (1956)

VELOCITY OF SOUND (GAS) (298 TO 473 DEGREES K AND 100 TO 1000 ATM)
EXPERIMENTAL - TABLE (70 VALUES), GRAPHS, EQUATION, APPARATUS

349 LACAM,A. BERGEON,R.
CELERITE DU SON DANS LES GAZ SOUS PRESSION ET COEFFICIENTS DU VIRIEL. THE VELOCITY OF SOUND IN GASES UNDER PRESSURE AND VIRIAL COEFFICIENTS.
J. RECH. CENTRE NATL. RECH. SCI. LAB. BELLEVUE (PARIS) VOL. 6, 349-51 (1955)

VELOCITY OF SOUND (GAS) (296 TO 474 DEGREES K),
EQUATION OF STATE (GAS)
EXPERIMENTAL - GRAPH, EQUATIONS

350 LADENBURG,A. KRUGEL,C.
UEBER DIE MESSUNG TIEFER TEMPERATUREN. II. MEASUREMENT OF LOW TEMPERATURES. II.
BER. DEUT. CHEM. GES. VOL. 33, 637-38 (1900)

BOILING TEMPERATURE (111 DEGREES K AT 751 MM HG)
EXPERIMENTAL - ONE VALUE

351 LAMBERT,J.D. COTTON,K.J. PAILTHROPE,M.W. ET AL.
TRANSPORT PROPERTIES OF GASEOUS HYDROCARBONS.
PROC. ROY. SOC. (LONDON) VOL A231, 280-90 (1955)

VISCOSITY (GAS)(308 TO 350 DEGREES K), SPECIFIC HEAT (V=CONSTANT), THERMAL CONDUCTIVITY (GAS)(339 DEGREES K)
EXPERIMENTAL - TABLE (6 VALUES), EQUATIONS

352 LEDUC,A.
COEFFICIENTS DE DILATATION DES GAZ. EXPANSION COEFFICIENTS OF GASES.
COMPT. REND. VOL. 148, 1173-6 (1909)

EXPANSION COEFFICIENT (GAS) (273 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE)

353 LEE,A.L.
VISCOSITY OF LIGHT HYDROCARBONS.
AMERICAN PETROLEUM INSTITUTE, NEW YORK (1965) 128 PP

VISCOSITY (GAS)(311 TO 541 DEGREES K)
COMPILATION - TABLES, GRAPHS
-CODED FROM ABSTRACT-

354 LEIPUNSKY,O.
THE VISCOSITY OF COMPRESSED GASES.
ACTA PHYSICOCHIM. URSS VOL. 18, 172-82 (1943)

VISCOSITY (GAS) (298 DEGREES K AND 60 TO 100 ATM)
THEORETICAL - EQUATIONS, TABLE (4 VALUES)
-APPLICABILITY OF ENSKOGS FORMULA-

355 LENNARD-JONES,J.E.
THE EQUATION OF STATE OF GASES AND CRITICAL PHENOMENA.
PHYSICA VOL 4, NO. 10, 941-56 (NOV 1937)

EQUATION OF STATE, POTENTIAL FUNCTIONS (GAS), CRITICAL POINT
THEORETICAL - EQUATIONS, TABLES (6 VALUES)

356 LENNARD-JONES,J.E. DEVONSHIRE,A.F.
CRITICAL AND CO-OPERATIVE PHENOMENA. IV. A THEORY OF DISORDER IN SOLIDS AND LIQUIDS AND THE PROCESS OF MELTING.
PROC. ROY. SOC. (LONDON) VOL A170, 464-84 (1939)

MELTING LINE
THEORETICAL - EQUATIONS

357 LENOIR,J.M.
THERMAL CONDUCTIVITY OF GASES AT ATMOSPHERIC PRESSURE.
ARKANSAS UNIV. (FAYETTEVILLE) ENG. EXPT. STA. BULL. NO. 18 (AUG 1953) 48 PP

THERMAL CONDUCTIVITY (GAS) (88 TO 425 DEGREES K)
SURVEY - TABLE (34 VALUES)
DATA FROM REFERENCES 275, 360, 566

358 LENOIR,J.M.
MEASUREMENT OF THE THERMAL CONDUCTIVITY OF GASES AT HIGH PRESSURE.
ILLINOIS UNIV., URBANA, PH. D. THESIS (1949) 187 PP

THERMAL CONDUCTIVITY (GAS) (313 DEGREES K AND 1 TO 203 ATM)
EXPERIMENTAL - TABLE (13 VALUES), GRAPH, EQUATION, APPARATUS

359 LENOIR,J.M. COMINGS,E.W.
THERMAL CONDUCTIVITY OF GASES. MEASUREMENTS AT HIGH PRESSURES.
CHEM. ENG. PROGR. VOL. 47, 223-31 (1951)

THERMAL CONDUCTIVITY (GAS) (313 DEGREES K AND 1 TO 203 ATM)
EXPERIMENTAL - TABLE (12 VALUES), GRAPH, APPARATUS

360 LENOIR,J.M. JUNK,W.A. COMINGS,E.W.
MEASUREMENT AND CORRELATION OF THERMAL CONDUCTIVITIES OF GASES AT HIGH PRESSURE.
CHEM. ENG. PROGR. VOL. 49, NO. 10, 539-42 (1953)

THERMAL CONDUCTIVITY (GAS) (326 DEGREES K)
EXPERIMENTAL - TABLE (15 VALUES), GRAPH

361 LEVCHENKO,G.T.
THERMODYNAMICAL PROPERTIES OF COMPRESSED METHANE.
ZHUR. FIZ. KHIM. VOL. 18, NO. 10, 453-65 (1944) (IN RUSSIAN)

MOLAR VOLUME, DENSITY, SPECIFIC HEAT (CONSTANT PRESSURE), ENTHALPY, ENTROPY, INTERNAL ENERGY, GIBBS FREE ENERGY, HELMHOLTZ FREE ENERGY (GAS) (203 TO 473 DEGREES K AND 10 TO 100 ATM), SPECIFIC HEAT (CONSTANT VOLUME) (248 TO 473 DEGREES K AND 10 TO 100 ATM)
CALCULATED - TABLE (1600 VALUES), GRAPH, EQUATIONS

362 LEWIS,G.N. RANDALL,M.
THERMODYNAMICS
MCGRAW HILL BOOK CO., INC., NEW YORK, 2ND ED. (1961) 723 P

SPECIFIC HEAT (P = CONSTANT) (IDEAL GAS),
FREE ENERGY (HELMHOLTZ)(GAS)(298 TO 2000 DEGREES K)
REFERENCE BOOK - TABLE (5 VALUES), GRAPH, EQUATION

363 LEWIS,O.G.
RELATIONSHIPS BETWEEN POLYMER STRUCTURE AND GLASS TEMPERATURE.
I. THE N-ALKANES.
J. CHEM. PHYS. VOL 43, NO. 8, 2693-96 (OCT 1965)

VISCOSITY (LIQUID)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

364 LIANG,S.C.
LOW VAPOR PRESSURE MEASUREMENT AND THERMAL TRANSPIRATION.
J. PHYS. CHEM. VOL. 56, 660-2 (1952)

VAPOR PRESSURE (SOLID) (48 TO 59 DEGREES K)
CALCULATED - GRAPH, EQUATION

365 LICHT,W. STECHERT,D.G.
THE VARIATION OF THE VISCOSITY OF GASES AND VAPORS WITH TEMPERATURE.
J. PHYS. CHEM. VOL. 48, 23-47 (1944)

VISCOSITY (GAS) (19 TO 1900 DEGREES K), CRITICAL CONSTANTS, PRINCIPLE OF CORRESPONDING STATES
CORRELATION - EQUATIONS, NOMOGRAPH

366 LIN,S.H. EYRING,H. DAVIS,W.J.
THERMAL CONDUCTIVITY OF LIQUIDS.
J. PHYS. CHEM. VOL 68, NO. 10, 3017-20 (OCT 1964)

THERMAL CONDUCTIVITY (LIQUID) (99 TO 150 DEGREES K AND 1 TO 50 ATM)
THEORETICAL - EQUATIONS, TABLE (5 VALUES)

367 LINDE AIR PRODUCTS COMPANY
LINDE RARE GASES.
LINDE AIR PRODUCTS CO., NEW YORK, REPT. (1957) 15 P

DENSITY (SATURATED LIQUID AND VAPOR), HEAT OF VAPORIZATION (112 DEGREES K), MELTING TEMPERATURE AND PRESSURE, HEAT OF FUSION (89 DEGREES K), SPECIFIC HEAT (CONSTANT PRESSURE), SPECIFIC HEAT RATIO (288 DEGREES K AND 1 ATM), CRITICAL CONSTANTS
COMPILATION - SOURCES NOT GIVEN

368 LIPSICAS, M. BLOOM,M. MULLER,B.H.
NUCLEAR MAGNETIC RESONANCE MEASUREMENT OF GAS COMPRESSIBILITY.
J. CHEM. PHYS. VOL 34, 1813-4 (1961)

COMPRESSIBILITY FACTOR (GAS)(208.5 TO 213.5 DEGREES K AND
27.3 TO 58.4 ATM)
EXPERIMENTAL - TABLE (5 VALUES)

369 LOHRISCH,F.W.
HEAT-TRANSFER COEFFICIENTS FOR INDUSTRIAL GASES.
J. APPL. CHEM. (LONDON) VOL. 2, 464-9 (AUG 1952)

DENSITY, VISCOSITY, THERMAL CONDUCTIVITY, SPECIFIC
HEAT (P=CONSTANT, V=CONSTANT) (GAS) (273 TO 773 DEGREES K)
CALCULATION - TABLE (42 VALUES)

370 LOVEJOY,D.R.
SOME BOILING AND TRIPLE POINTS BELOW 0 DEGREE C.
NATURE VOL. 197, NO. 4865, 353-54 (JAN 1963)

NORMAL BOILING POINT, TRIPLE POINT TEMPERATURE
EXPERIMENTAL - TABLE (2 VALUES)

371 LU,W-C. JHON,M.S. REE,T. EYRING,H.
SIGNIFICANT STRUCTURE THEORY APPLIED TO SURFACE TENSION.
J. CHEM. PHYS. VOL 46, NO. 3, 1075-81 (FEB 1967)

SURFACE TENSION (93 TO 113 DEGREES K)
THEORETICAL - TABLE (3 VALUES), EQUATIONS

372 LUNBECK,R.J.
HET PRINCIPE VAN OVEREENSTEMMENDE TOESTANDEN IN DE
QUANTUMMECHANICA. THE PRINCIPLE OF CORRESPONDING STATES IN
QUANTUM MECHANICS.
UNIV. OF AMSTERDAM, INSTITUTE FOR THEORETICAL PHYSICS, PH. D.
THESIS (1951) 91 PP

CORRESPONDING STATES THEORY, JOULE-THOMSON COEFFICIENT,
SECOND VIRIAL COEFFICIENT (GAS), CRITICAL COEFFICIENT
THEORETICAL - EQUATIONS, GRAPHS, TABLES

373 LUSSANA,S.
UBER DIE SPEZIFISCHE WARME DER GASE.***ON THE SPECIFIC HEAT OF
GASES.
Z. PHYSIK. CHEM. VOL 16, 166-7 (1895)

SPECIFIC HEAT (V = CONSTANT) (GAS) (293 DEGREES K AND
6 TO 32 ATM)
EXPERIMENTAL - TABLE (10 VALUES), EQUATION

374 LYCKMAN,E.W. ECKERT,C.A. PRAUSNITZ,J.M.
GENERALIZED REFERENCE FUGACITIES FOR PHASE EQUILIBRIUM
THERMODYNAMICS.
CHEM. ENG. SCI. VOL 20, 685-91 (JUL 1965)

FUGACITY COEFFICIENT (SAT. LIQUID) (133 TO 191 DEGREES K)
CORRELATION - GRAPH

375 LYDERSEN,A.L. GREENKORN,R.A. HOUGEN,O.A.
GENERALIZED THERMODYNAMIC PROPERTIES OF PURE FLUIDS.
WISCONSIN UNIV. ENG. EXPT. STA. REPT. NO. 4 (OCT 1955) 99 PP

ENTHALPY, ENTROPY, INTERNAL ENERGY, HEAT CAPACITY, FUGACITY COEFFICIENT, COMPRESSIBILITY FACTOR, DENSITY (GAS,LIQUID) (90 TO 2800 DEGREES K AND 0.4 TO 1300 ATM), DENSITY (SAT. LIQUID)(57 TO 191 DEGREES K), CORRESPONDING STATES
CALCULATED - EQUATIONS, TABLES (10,000 VALUES)

376 MAC DOUGALL,D.P.
THE HEAT CAPACITY OF METHANE.
PHYS. REV. VOL. 38, 2296-8 (1931)

IDEAL GAS PROPERTY (ROTATIONAL HEAT CAPACITIES)
(4 TO 154 DEGREES K)
THEORETICAL - TABLE (12 VALUES), GRAPHS

377 MAC DOUGALL,D.P.
ENTROPIES OF METHANE AND AMMONIA.
PHYS. REV. VOL. 38, NO. 11, 2074-5 (1931)

ENTROPY (GAS) (298 DEGREES K)
CALCULATED - ONE VALUE

378 MADIGOSKY,W.M.
THERMODYNAMIC PROPERTIES OF METHANE AT HIGH DENSITIES.
NAVAL ORDANCE LAB., WHITE OAK, MD., REPT. NO NOLTR 63-101 (AUG 1963) CONTR. NO. TASK FR-27, 12 PP

P-V-T DATA, SPECIFIC HEATS (V=CONSTANT AND P=CONSTANT), VELOCITY OF SOUND (GAS) (203 TO 473 DEGREES K AND 1 TO 1000 ATM)
CALCULATED - TABLES (500 VALUES)

379 MAGASANIK,D. ELLINGTON,R.T.
UNLIKE-MOLECULE INTERACTIONS FROM SECOND VIRIAL COEFFICIENTS.
AICHE 56TH ANNUAL MEETING, HOUSTON, TEX. (DEC 1-5, 1963) PAPER, 18 PP

POTENTIAL FUNCTION (GAS) (273 TO 423 DEGREES K)
THEORETICAL - TABLE (16 VALUES)

380 MAJMUDAR,V.D. OKA,V.S.
ATOMIC FUNCTION OF SOME GASES IN THE LIGHT OF REVISED VISCOSITY DETERMINATIONS.
J. UNIV. BOMBAY VOL. A17, NO. 25, 35-40 (MAR 1949)

VISCOSITY (GAS) (273 DEGREES K)
EXPERIMENTAL - ONE TABULAR VALUE
(CORRELATION BETWEEN VISCOSITY, THERMAL CONDUCTIVITY, AND SPECIFIC HEAT (V=CONSTANT))

381 MAKITA,T.
TRANSPORT PHENOMENA OF GASES UNDER HIGH PRESSURES. II. THERMAL CONDUCTIVITY.
KOATSU GASU KYOKAISHI VOL. 23, NO. 10, 489-501 (OCT 1959) (IN JAPANESE)

THERMAL CONDUCTIVITY (GAS) (314 AND 326 DEGREES K AND 1 TO 200 ATM)
COMPILATION - TABLE (10 VALUES)
DATA FROM REFERENCE 123

382 MAKITA,T.
TRANSPORT PHENOMENA OF GASES UNDER HIGH PRESSURES. I. VISCOSITY.
KOATSU GASU KYOKAISHI VOL 23, 367-79 (1959) (IN JAPANESE)

VISCOSITY (GAS) (223 TO 348 DEGREES K AND 1 TO 600 ATM)
COMPILATION - TABLE (46 VALUES)

383 MAKSIMUK,B.YA.
TEMPERATURE-ENTROPY DIAGRAM FOR METHANE IN THE TEMPERATURE RANGE 0-150 DEGREES AND PRESSURE 12-100 ATM.
TR. INST. ISPOLZ. GAZA. AKAD. UKR. SSR, NO. 9, 109-10 (1961) (IN RUSSIAN)

ENTROPY (GAS) (273 TO 423 DEGREES K AND 12 TO 100 ATM)
ABSTRACT - NO DATA

384 MALISOFF,W. EGLOFF,G.
METHANE.
J. PHYS. CHEM. VOL. 22, 529-75 (1919)

COEFFICIENT OF EXPANSION (GAS) (273 TO 373 DEGREES K), NORMAL BOILING POINT, TRIPLE POINT TEMPERATURE, CRITICAL TEMPERATURE, PRESSURE AND DENSITY
REVIEW - 7 TABULAR VALUES

385 MANN,W.B. DICKINS,B.G.
THE THERMAL CONDUCTIVITIES OF THE SATURATED HYDROCARBONS IN THE GASEOUS STATE.
PROC. ROY. SOC. (LONDON) VOL A134, 77-96 (1932)

THERMAL CONDUCTIVITY (GAS) (273 TO 293 DEGREES K AND 19 TO 74 CM HG)
EXPERIMENTAL - TABLE (36 VALUES)

386 MANZHELII,V.G. TOLKACHEV,A.M.
DENSITIES OF AMMONIA AND METHANE IN THE SOLID STATE.
SOVIET PHYS. SOLID STATE VOL. 5, NO. 12, 2506-10 (JUN 1964)
(TRANS. FROM FIZ. TVERDOGO TELA. VOL. 5, NO. 12, 3413-19 (1963))

DENSITY (SOLID) (77 AND 85 DEGREES K)
EXPERIMENTAL - TABLE (2 VALUES), APPARATUS

387 MANZHELII,V.G. TOLKACHEV,A.M. VOITOVICH,E.I.
THERMAL EXPANSION OF CRYSTALLINE NITROGEN, OXYGEN, AND METHANE.
PHYS. STATUS SOLIDI VOL 13, NO. 2, 351-8 (1966) (IN RUSSIAN)

THERMAL EXPANSION (SOLID), SPECIFIC HEAT (V = CONSTANT) (SOLID) (22 TO 60 DEGREES K)
EXPERIMENTAL - TABLE (26 VALUES), GRAPH

388 MARON,S.H. TURNBULL,D.
EQUATION OF STATE FOR GASES AT HIGH PRESSURES INVOLVING ONLY CRITICAL CONSTANTS.
J. AM. CHEM. SOC. VOL. 64, 2195-8 (SEPT 1942)

EQUATION OF STATE, SPECIFIC VOLUME (GAS) (273 TO 473 DEGREES K)
THEORETICAL - EQUATION, TABLE (6 VALUES)

389 MARON,S.H. TURNBULL,D.
GENERALIZED THERMODYNAMIC PROPERTIES OF GASES AT HIGH PRESSURE.
IND. ENG. CHEM. VOL. 34, 544-51 (1942)

SPECIFIC VOLUME (GAS)(273 DEGREES K AND 30 TO 1000 ATM),
ENTHALPY, ENTROPY, EQUATION OF STATE (GAS)
CALCULATION - TABLE (12 VALUES), EQUATIONS

390 MARON,S.H. TURNBULL,D.
CALCULATING BEATTIE-BRIDGEMAN CONSTANTS FROM CRITICAL DATA.
IND. ENG. CHEM. VOL 33, 408-10 (MAR 1941)

EQUATION OF STATE, P-V-T DATA (GAS) (273 TO 473 DEGREES K AND 32 TO 254 ATM)
THEORETICAL - EQUATION, TABLE (15 VALUES)

391 MARTIN,J.J.
THE THERMODYNAMIC BEHAVIOR OF THE REAL IDEAL GAS.
CHEM. ENGR. PROGR. SYMP. SER. NO. 44, VOL 59, 120-6 (1963)

EQUATION OF STATE, SECOND VIRIAL COEFFICIENT (GAS)
(273 TO 550 DEGREES K), COMPRESSIBILITY FACTOR, ENTHALPY,
ENTROPY, SPECIFIC HEAT (V=CONSTANT) (GAS)
THEORETICAL - GRAPH, EQUATIONS

392 MARYOTT,A. SMITH,E.R.
TABLE OF DIELECTRIC CONSTANTS OF PURE LIQUIDS.
NATL. BUR. STANDARDS CIRC. NO. 514 (AUG 1951) 44 PP

DIELECTRIC CONSTANT (LIQUID) (100 DEGREES K)
COMPILATION - TABLE (1 VALUE)
DATA FROM REFERENCE 410

393 MASI,J.F.
SURVEY OF EXPERIMENTAL DETERMINATIONS OF HEAT CAPACITY OF TEN TECHNICALLY IMPORTANT GASES.
TRANS. AM. SOC. MECH. ENGRS. VOL. 76, 1067-74 (1954)

SPECIFIC HEAT (P=CONSTANT) (GAS) (300 TO 500 DEGREES K)
REVIEW - TABLE (5 VALUES), EQUATIONS, APPARATUS

394 MASLAN,F. ABERTH,E.
EQUATION OF STATE FOR LIQUIDS.
J. CHEM. PHYS. VOL 19, 658-59 (1951)

EQUATION OF STATE (LIQUID)
THEORETICAL - EQUATION

395 MASON,E.A. RICE,W.E.
THE INTERMOLECULAR POTENTIALS FOR SOME SIMPLE NONPOLAR MOLECULES.
J. CHEM. PHYS. VOL. 22, NO. 5, 843-51 (1954)

POTENTIAL FUNCTION (GAS) (250 TO 580 DEGREES K),
VISCOSITY, THERMAL CONDUCTIVITY, SELF-DIFFUSION (GAS)
THEORETICAL - TABLE OF PARAMETERS, GRAPHS

396 MATHESON COMPANY, INC.
MATHESON GAS DATA BOOK.
MATHESON COMPANY, INC., EAST RUTHERFORD, NEW JERSEY (1961) 419 PP

VAPOR PRESSURE (LIQUID), HEAT OF VAPORIZATION, (100 TO 191 DEGREES K), SPECIFIC VOLUME, ENTHALPY, ENTROPY (SAT. LIQUID AND SAT. VAPOR) (100 TO 191 DEGREES K), SPECIFIC VOLUME, ENTHALPY, ENTROPY (GAS) (201 TO 478 DEGREES K), NORMAL BOILING POINT, FREEZING POINT (1 ATM), CRITICAL TEMPERATURE, PRESSURE, AND DENSITY
COMPILATION - TABLES (540 VALUES), DATA FROM REFERENCE 401

397 MATHOT,V. STAVELEY,L.A.K. YOUNG,J.A. PARSONAGE,N.G.
THERMODYNAMIC PROPERTIES OF THE SYSTEM METHANE PLUS CARBON MONOXIDE AT 90.67 DEGREES K.
TRANS. FARADAY SOC. VOL. 52, 1488-1500 (1956)

MOLAR VOLUME (LIQUID) (90.67 DEGREES K), TRIPLE POINT PRESSURE
EXPERIMENTAL - TABLE (2 VALUES), GRAPH, APPARATUS

398 MATHUR,G.P. THODOS,G.
THE SELF-DIFFUSIVITY OF SUBSTANCES IN THE GASEOUS AND LIQUID STATES.
A.I.CH.E. JOURNAL VOL 11, NO. 4, 613-16 (JUL 1965)

SELF-DIFFUSIVITY (GAS) (115 TO 1500 DEGREES K)
THEORETICAL - EQUATIONS, GRAPHS

399 MATHUR,S. SAXENA,S.C.
RELATIONS BETWEEN THERMAL CONDUCTIVITY AND DIFFUSION COEFFICIENTS OF PURE AND MIXED POLYATOMIC GASES.
PROC. PHYS. SOC. (LONDON) VOL 89, NO. 565, 753-64 (NOV 1966)

THERMAL CONDUCTIVITY (GAS) (90 TO 353 DEGREES K)
CALCULATED - TABLE (5 VALUES), EQUATIONS

400 MATSCHKE,D.E. THODOS,G.
THE PVT BEHAVIOR OF METHANE IN THE GASEOUS AND LIQUID STATES.
J. PETROL. TECHNOL. VOL 12, 67-71 (OCT 1960)

P-V-T DATA (LIQUID, GAS) (95 TO 380 DEGREES K AND 4 TO 900 ATM), VAPOR PRESSURE (LIQUID) (95 TO 191 DEGREES K),
CRITICAL TEMPERATURE, PRESSURE AND DENSITY
CALCULATED - GRAPH, TABLE (300 VALUES), EQUATIONS

401 MATTHEWS,C.S. HURD,C.
THERMODYNAMIC PROPERTIES OF METHANE.
TRANS. AM. INST. CHEM. ENG. VOL. 42, 55-78 (1946)

VAPOR PRESSURE (LIQUID), SPECIFIC VOLUME, ENTROPY, ENTHALPY (SAT. LIQUID AND SAT. VAPOR), HEAT OF VAPORIZATION (100 TO 191 DEGREES K), EQUATION OF STATE, SPECIFIC VOLUME, ENTHALPY, ENTROPY, FUGACITY (GAS) (113 TO 533 DEGREES K AND 10 TO 1500 LB/SQ. IN.)
CALCULATED - EQUATIONS, TABLE (5000 VALUES), GRAPH

402 MAYER,J.E. ACKERMANN,P.G.
THE STATISTICAL MECHANICS OF CONDENSING SYSTEMS. II.
J. CHEM. PHYS. VOL 5, 74-83 (JAN 1937)

COMPRESSIBILITY FACTOR (SATURATED VAPOR)
THEORETICAL - EQUATIONS, GRAPH

403 MAYER,S.W.
DEPENDENCE OF SURFACE TENSION ON TEMPERATURE.
J. CHEM. PHYS. VOL. 38, NO. 8, 1803-08 (1963)

SURFACE TENSION (90 TO 120 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (9 VALUES)

404 MAYLAND,B.J.
THE EFFECT OF PRESSURE ON THE VISCOSITY OF GASES.
ILLINOIS UNIV., URBANA, PH. D. THESIS (1943) 120 P

VISCOSITY (GAS) (303 TO 368 DEGREES K AND 64 TO 2014 PSIA)
EXPERIMENTAL - TABLE (100 VALUES), EQUATIONS, GRAPHS

405 MC BRIDE,B.J. HEIMEL,S. EHLERS,J.G. GORDON,S.
THERMODYNAMIC PROPERTIES TO 6000 DEGREES K FOR 210 SUBSTANCES INVOLVING THE FIRST 18 ELEMENTS.
NATL. AERONAUT. SPACE ADMIN., SPEC. PUBL. NO. SP-3001 (1963) 326 PP

SPECIFIC HEAT (P=CONSTANT), ENTHALPY, ENTROPY, FREE ENERGY, (HELMHOLTZ FUNCTION) (IDEAL GAS) (0 TO 6000 DEGREES K)
CALCULATION - TABLE (240 VALUES), EQUATIONS

406 MC COUBREY,J.C. SINGH,N.M.
INTERMOLECULAR FORCES IN QUASI-SPHERICAL MOLECULES. PART 2.
TRANS. FARADAY SOC. VOL 55, 1826-30 (1959)

INTERMOLECULAR POTENTIAL, VISCOSITY (GAS) (323 AND 423 DEGREES K)
THEORETICAL - EQUATIONS, TABLES (15 VALUES)

407 MC DOWELL,R.S. KRUSE,F.H.
THERMODYNAMIC FUNCTIONS OF METHANE.
J. CHEM. ENG. DATA VOL. 8, NO. 4, 547-48 (OCT 1963)

SPECIFIC HEAT (P=CONSTANT), ENTHALPY, ENTROPY, FREE ENERGY (HELMHOLTZ FUNCTION) (IDEAL GAS) (60 TO 5000 DEGREES K)
CALCULATED - TABLE (260 VALUES)

408 MC LAUGHLIN,E.
VISCOSITY AND SELF-DIFFUSION IN LIQUIDS.
TRANS. FARADAY SOC. VOL. 55, 28-38 (1959)

VISCOSITY (LIQUID) (93 TO 108 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (3 VALUES)

409 MC LAUGHLIN,E.
THE THERMAL CONDUCTIVITY OF LIQUIDS AND DENSE GASES.
CHEM. REVS. VOL 64, NO. 4, 389-428 (1964)

THERMAL CONDUCTIVITY (LIQUID) (93 TO 108 DEGREES K)
EXPERIMENTAL - TABLE (3 VALUES), EQUATION, GRAPH

410 MC LENNAN,J.C. JACOBSEN,R.C. WILHELM,J.O.
DIELECTRIC CONSTANTS OF LIQUEFIED GASES.
TRANS. ROY. SOC. CAN. VOL. 24, SECT. 3. 37-46 (JAN 1929)

DIELECTRIC CONSTANT (LIQUID) (92 TO 112 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES), GRAPH, APPARATUS

411 MCLENNAN,J.C. PLUMMER,W.G.
THE CRYSTAL STRUCTURE OF SOLID METHANE.
PHIL. MAG. VOL 7, NO. 45, 761-74 (MAY 1929)

CRYSTAL STRUCTURE, TRIPLE POINT TEMPERATURE, NORMAL
BOILING POINT
EXPERIMENTAL - TABLES (20 VALUES), APPARATUS

412 MCLENNAN,J.C. PLUMMER,W.G.
THE CRYSTAL STRUCTURE OF SOLID METHANE.
NATURE VOL 122, NO. 3076, 571-2 (1928)

CRYSTAL STRUCTURE
EXPERIMENTAL
LETTER TO EDITOR

413 MEISSNER,H.P. SEFERIAN,R.
P-V-T RELATIONS OF GASES.
CHEM. ENG. PROGR. VOL. 47, 579-84 (1951)

COMPRESSIBILITY FACTOR (GAS)
CORRELATION - GRAPH

414 MEL NICHENKO,N.I.
NEW GENERAL FORMULA FOR VAPOR PRESSURE APPLICABLE TO LIQUIDS OF
VARIOUS COMPOSITION.
INZH.-FIZ. AKAD. NAUK BELORUS. SSR VOL. 6, NO. 7, 50-53 (1963)
TRANSL. BY JOINT PUBLICATIONS RESEARCH SERVICE, WASHINGTON, D.C.,
NO. 22, 715, PP. 61-71 (JAN 1964), AVAIL. FROM CFSTI NO. TT-
64-21276. (ORIGINAL IN RUSSIAN)

VAPOR PRESSURE (LIQUID)
THEORETICAL - EQUATION, TABLE OF PARAMETERS, GRAPH

415 MICHELS,A. NEDERBRAGT,G.W.
ISOTHERMS OF METHANE BETWEEN 0 DEGREES AND 150 DEGREES C AND DENSITIES 19 AND 53 AMAGAT (PRESSURES BETWEEN 20 AND 80 ATM.)
PHYSICA VOL 2, 1000-02 (1935)

P-V-T DATA (GAS) (273 TO 423 DEGREES K AND 18 TO 81 ATM)
EXPERIMENTAL - TABLE (55 VALUES), EQUATION

416 MICHELS,A. NEDERBRAGT,G.W.
ISOTHERMS OF METHANE BETWEEN 0 AND 150 DEGREES FOR DENSITIES UP TO 225 AMAGAT CALCULATED SPECIFIC HEAT, ENERGY AND ENTROPY IN THE SAME REGION.
PHYSICA VOL. 3, NO. 7, 569-77 (JUL 1936)

P-V-T DATA, INTERNAL ENERGY, ENTROPY, ENTHALPY, FREE ENERGY (HELMHOLTZ AND GIBBS FUNCTIONS) (GAS) (273 TO 423 DEGREES K AND 18 TO 225 ATM)
EXPERIMENTAL - TABLE (400 VALUES), EQUATIONS

417 MILLAR,R.W.
THE SPECIFIC HEATS OF POLYATOMIC GASES AT LOW TEMPERATURES.
J. AM. CHEM. SOC. VOL. 45, 874-81 (1923)

SPECIFIC HEAT (CONSTANT PRESSURE AND CONSTANT VOLUME) (GAS) (139 TO 278 DEGREES K)
EXPERIMENTAL - TABLES (20 VALUES), EQUATIONS, APPARATUS

418 MILLER,A.A.
VOLUME-ENERGY RELATIONS IN LIQUIDS AT 0 DEGREES K.
J. PHYS. CHEM. VOL 69 NO. 9, 3190-1 (1965)

SPECIFIC VOLUME (LIQUID) (0 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (1 VALUE)

419 MILLER,D.G.
ESTIMATING VAPOR PRESSURES - A COMPARISON OF EQUATIONS
IND. ENG. CHEM. VOL 56, NO. 3, 46-57 (1964)

VAPOR PRESSURE (LIQUID) (113 TO 191 DEGREES K)
REVIEW - EQUATIONS

420 MILLER,J.G.
VI-DIELECTRIC-CONSTANT AND REFRACTIVITY DATA.
TRANS. AM. SOC. MECH. ENGRS. VOL. 70, 645-49 (1948)

DIELECTRIC CONSTANT (GAS) (300 DEGREES K AND 1 ATM)
COMPILATION - EQUATIONS, TABLE (6 VALUES)
DATA FROM REFERENCES 64, 320, 474, 499, 501, 521

421 MILLIGAN,J.H. LILEY,P.E.
LENNARD-JONES POTENTIAL PARAMETER VARIATION AS DETERMINED FROM VISCOSITY DATA FOR TWELVE GASES.
AICHE-ASME HEAT TRANSFER CONF., CLEVELAND, OHIO (AUG 9-12, 1964) PAPER NO. 64-HT-20, 8 PP

POTENTIAL FUNCTION (GAS) (90 TO 473 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH

422 MISIC,D.M.
THE THERMAL CONDUCTIVITY OF GASES AT HIGH PRESSURES.
NORTHWESTERN UNIV., EVANSTON, ILL., PH.D. THESIS (1965) (ABSTR. IN DISSERTATION ABSTR. VOL 26, NO. 6, DEC 1965) AVAIL. UNIVERSITY MICROFILMS, ANN ARBOR, MICH., ORDER NO. 65-12,134

THERMAL CONDUCTIVITY (GAS) (275 TO 348 DEGREES K AND 15 TO 8490 PSIA)
EXPERIMENTAL - TABLE (75 VALUES), GRAPH

423 MISIC,D. THODOS,G.
THE THERMAL CONDUCTIVITY OF HYDROCARBON GASES AT NORMAL PRESSURES.
AM. INST. CHEM. ENGRS. J. VOL. 7, 264-67 (1961)

THERMAL CONDUCTIVITY, SPECIFIC HEAT (P=CONSTANT) (GAS) (113 TO 550 DEGREES K)
CORRELATION - EQUATIONS, GRAPHS

424 MISIC,D. THODOS,G.
ATMOSPHERIC THERMAL CONDUCTIVITIES FOR GASES OF SIMPLE MOLECULAR STRUCTURE.
J. CHEM. ENG. DATA VOL. 8, NO. 4, 540-44 (OCT 1963)

THERMAL CONDUCTIVITY (GAS)(120 TO 773 DEGREES K)
CORRELATION - GRAPH, EQUATION

425 MISIC,D. THODOS,G.
THERMAL CONDUCTIVITY MEASUREMENTS OF METHANE IN THE DENSE GASEOUS STATE.
PHYSICA VOL 32, NO. 5, 885-99 (MAY 1966)

THERMAL CONDUCTIVITY (GAS) (275 TO 348 DEGREES K AND 1 TO 578 ATM)
EXPERIMENTAL - TABLES (70 VALUES), GRAPHS, EQUATIONS

426 MOOY,H.H.
ON THE CRYSTAL STRUCTURE OF METHANE. I.
COMMUNS. PHYS. LAB. UNIV. LEIDEN NO. 213D (1931)

CRYSTAL STRUCTURE (20.35 DEGREES K)
EXPERIMENTAL

427 MORI,Y.
THE PERFECT GAS AND THE EQUATION OF STATE OF REAL GASES.
J. SCI. RESEARCH INST. (TOKYO) VOL. 48, 272-9 (1954)

EQUATION OF STATE, JOULE-THOMSON COEFFICIENT (GAS)
THEORETICAL - EQUATIONS, GRAPH

428 MORLET,J.
RESULTATS EXPERIMENTAUX CONCERNANT LA DENSITE ET LA MISCIBILITE DES HYDROCARBURES LIQUEFIES A BASSE TEMPERATURE
DES HYDROCARBURES LIQUEFIES A BASSE TEMPERATURE.
THE DENSITY AND MISCIBILITY OF LIQUEFIED HYDROCARBON GASES AT LOW TEMPERATURES.
REV. INST. FRANC. PETROLE ANN. COMBUST. LIQUIDES VOL. 18, 127-43 (1963)

DENSITY (LIQUID) (93 TO 178 DEGREES K)
EXPERIMENTAL - GRAPH

429 MORSY,T.E.
VISKOSITAT VON GASFORMIGEN KOHLENWASSERSTOFFEN BEI KLEINEN DRUCKEN.***VISCOSITY OF GASEOUS HYDROCARBONS AT LOW PRESSURE.
KALTETECHNIK VOL 19, NO. 4, DKV ARBEITSBLATT 1-83 (APR 1967)

VISCOSITY (GAS) (95 TO 669 DEGREES K), CRITICAL TEMPERATURE AND PRESSURE
CALCULATION - EQUATIONS, TABLE (2 VALUES), GRAPH

430 MUELLER,C.R. CAHILL,R.W.
MASS SPECTROMETRIC MEASUREMENT OF DIFFUSION COEFFICIENTS.
J. CHEM. PHYS. VOL 40, NO. 3, 651-54 (1964)

SELF-DIFFUSION (GAS) (298 TO 383 DEGREES K),
POTENTIAL FUNCTION (GAS)
EXPERIMENTAL - TABLE (3 VALUES)

431 MUELLER,W.H. LELAND,T.W. KOBAYASHI,R.
VOLUMETRIC PROPERTIES OF GAS MIXTURES AT LOW TEMPERATURES AND HIGH PRESSURES BY THE BURNETT METHOD. THE HYDROGEN-METHANE SYSTEM.
AM. INST. CHEM. ENGRS. J. VOL. 7, NO. 2, 267-72 (1961)

COMPRESSIBILITY FACTOR, 2ND VIRIAL COEFFICIENT (GAS)
(143 TO 283 DEGREES K)
EXPERIMENTAL - TABLES (70 VALUES)

432 MULLER,B.H.
CALCULATION OF THE R.M.S. JUMP DISTANCE IN LIQUIDS FROM THE INTERMOLECULAR CONTRIBUTION TO NUCLEAR SPIN RELAXATION.
PHYS. LETTERS VOL. 22, NO. 2, 123-4 (AUG 1966).

LIQUID STRUCTURE
CALCULATION

433 MYERS,H.S.
VAPOR PRESSURE CHART FOR ALL TYPES OF LOW BOILING HYDROCARBONS.
IND. ENG. CHEM. VOL. 47, NO. 8, 1659-60 (1955)

VAPOR PRESSURE (SOLID, LIQUID) (83 TO 191 DEGREES K)
CORRELATION - GRAPH

434 NAGAMIYA,T.
THE ZERO-POINT ENTROPY OF THE METHANE CRYSTAL.
PROGR. THEORET. PHYS. (KYOTO) VOL. 6, NO. 5, 702-13 (1951)

CRYSTAL STRUCTURE
THEORETICAL - EQUATIONS

435 NAGHIZADEH,J. RICE,S.A.
ON THE KINETIC THEORY OF DENSE FLUIDS. X. MEASUREMENT AND INTERPRETATION OF SELF-DIFFUSION IN LIQUID AR, KR, XE AND CH_4.
J. CHEM. PHYS. VOL. 36, NO. 10, 2710-20 (MAY 1962)

SELF DIFFUSION (LIQUID) (100 DEGREES K AND 8 TO 114 ATM)
EXPERIMENTAL - TABLE (4 VALUES), EQUATION, GRAPHS

436 NAZIEV,YA.M.
CORRELATION BETWEEN THERMAL CONDUCTIVITY AND VISCOSITY OF GASEOUS HYDROCARBONS OF THE METHANE SERIES.
IZV. VYSSHIKH UCHEBN. ZAVEDENII, NEFT I GAZ VOL 8, NO. 2, 75-8 (1965)

THERMAL CONDUCTIVITY, VISCOSITY (GAS) (173 TO 493 DEGREES K)
CALCULATED - EQUATIONS, TABLE (18 VALUES), GRAPH

437 NELSON,L.C. OBERT,E.F.
GENERALIZED PVT PROPERTIES OF GASES.
TRANS. AM. SOC. MECH. ENGRS. VOL. 76, 1057-66 (1954)

COMPRESSIBILITY FACTOR (GAS) (143 TO 2865 DEGREES K AND 0 TO 1800 ATM)
CORRELATION - GRAPHS, EQUATIONS

438 NELSON,L.C. OBERT,E.F.
LAWS OF CORRESPONDING STATES.
A.I.CH.E. JOURNAL VOL. 1, NO. 1, 74-7 (1955)

COMPRESSIBILITY FACTOR (GAS) (207 TO 666 DEGREES K),
CORRESPONDING STATES, CRITICAL CONSTANTS
CALCULATED - GRAPH, EQUATIONS

439 NEWTON,R.H.
ACTIVITY COEFFICIENTS OF GASES
IND. ENG. CHEM. VOL. 27 NO. 3, 302-6 (MAR 1935)

FUGACITY (GAS) (474 DEGREES K AND 46 TO 920 ATM)
CALCULATION - TABLE (12 VALUES), GRAPH

440 NOMOTO,O. KISHIMOTO,T.
ON MOLECULAR SOUND VELOCITY OF LIQUIDS. III.
CONSIDERATION ON THE RAO S RELATION ON THE DEPENDENCE OF MOLECULAR SOUND VELOCITY ON CRITICAL CONSTANTS.
J. PHYS. SOC. JAPAN VOL. 9 NO. 1, 73-7 (JAN-FEB 1954)

VELOCITY OF SOUND (LIQUID)
THEORETICAL - EQUATIONS

441 NOVAK,J.
STATE BEHAVIOR OF PURE GASES AND OF MIXTURES OF GASES.
CHEM. LISTY VOL 58, NO. 12, 1471-97 (DEC 1964) (IN CZECHOSLOVAKIAN)

EQUATION OF STATE (GAS)
THEORETICAL - EQUATIONS

442 O CONNELL,J.P. PRAUSNITZ,J.M. (UNIV. CALIF., BERKELEY)
APPLICATIONS OF THE KIHARA POTENTIAL TO THERMODYNAMIC AND TRANSPORT PROPERTIES OF GASES.
ADVANCES IN THERMOPHYSICAL PROPERTIES AT EXTREME TEMPERATURES (PROC. 3RD SYMP., PURDUE UNIV., MAR 1965) 19-31, ASME, NEW YORK (1965)

VISCOSITY (GAS) (90 TO 772 DEGREES K), SELF-DIFFUSION (GAS) (195 TO 382 DEGREES K), POTENTIAL FUNCTION (GAS)
THEORETICAL - EQUATIONS, TABLE OF PARAMETERS

443 OLDS,R.H. REAMER,H.H. SAGE,B.H. LACEY,W.N.
VOLUMETRIC BEHAVIOR OF METHANE.
IND. ENG. CHEM. VOL 35, NO. 8, 922-4 (AUG 1943)

COMPRESSIBILITY FACTOR (GAS) (20 TO 508 DEGREES K
AND 0 TO 10000 PSIA)
EXPERIMENTAL - TABLE (280 VALUES), GRAPH

444 OLSZEWSKI,C.
ON THE LIQUEFACTION OF GASES.
PHIL. MAG. VOL. 39, 188-211 (JAN-FEB 1895)

A REVIEW OF PREVIOUS EXPERIMENTS REGARDING THE LIQUEFACTION
OF GASES

445 OLSZEWSKI,K.
LIQUEFACTION ET SOLIDIFICATION DU FORMENE ET DU DEUTOXYDE
D AZOTE. LIQUEFACTION AND SOLIDIFICATION OF METHANE AND OF
NITROGEN DIOXIDE.
COMPT. REND. VOL. 100, 940-6 (1885)

VAPOR PRESSURE (LIQUID) (91 TO 109 DEGREES K), VAPOR
PRESSURE (SOLID) (71 TO 87 DEGREES K), CRITICAL POINT,
NORMAL BOILING POINT
EXPERIMENTAL - TABLE (11 VALUES)

446 OLSZEWSKI,K.
UEBER DIE DICHTE DES FLUSSIGEN METHANS, SOWIE DES VERFLUSSIGTEN
SAUERSTOFFS UND STICKSTOFFS.***ABOUT THE DENSITY OF LIQUID
METHANE AS WELL AS CONDENSED OXYGEN AND NITROGEN.
ANN. PHYSIK VOL 31, 58-74 (1887)

DENSITY (LIQUID) (109 DEGREES K), NORMAL BOILING POINT
EXPERIMENTAL - TABLE (3 VALUES)

447 OLSZEWSKI,K.
THE LIQUEFACTION AND SOLIDIFICATION OF ARGON.
TRANS. ROY. SOC. (LONDON) VOL. A186, 253-57 (1895)

NORMAL BOILING POINT, DENSITY (LIQUID) (111 DEGREES K),
TRIPLE POINT TEMPERATURE AND PRESSURE, CRITICAL TEMPERATURE
AND PRESSURE
EXPERIMENTAL - TABLE (7 VALUES)

448 ONEAL,C.,JR. BROKAW,R.S.
RELATION BETWEEN THERMAL CONDUCTIVITY AND VISCOSITY FOR NONPOLAR
GASES. II. ROTATIONAL RELAXATION OF POLYATOMIC MOLECULES.
PHYS. FLUIDS VOL 6, 1675-82 (DEC 1963)

THERMAL CONDUCTIVITY, VISCOSITY (GAS) (278 TO 285 DEGREES K),
INTERMOLECULAR POTENTIAL (GAS)
THEORETICAL - EQUATIONS, TABLE (20 VALUES)

449 ONUF,B.R. BURSIK,J.W.
FINAL REPORT. SECTION 1. CORRELATION OF THERMODYNAMIC TWO-PHASE DATA.
RENSSELAER POLYTECHNIC INST., TROY, N. Y., REPT. NO. TR-AE-6303 (JUN 1963) GRANT NO. DA TC44 177G6, 66 PP
DDC AD 612 787

GIBBS FUNCTION (LIQUID, GAS) (100 TO 180 DEGREES K)
THEORETICAL - EQUATION, TABLE OF PARAMETERS, GRAPH

450 OPFELL,J.B.
A DETAILED STUDY IN THE APPLICATION OF THE BENEDICT EQUATION TO ONE-COMPONENT SYSTEMS.
CALIFORNIA INST. OF TECH., PASADENA, PH. D. THESIS (1954)

EQUATION OF STATE, COMPRESSIBILITY FACTOR (GAS) (308 TO 478 DEGREES K AND 1000 TO 10000 LB/SQ. IN.)
THEORETICAL - TABLE OF COEFFICIENTS, EQUATION, GRAPH

451 OPFELL,J.B. SCHLINGER,W.G. SAGE,B.H.
BENEDICT EQUATION OF STATE. APPLICATION TO METHANE, ETHANE, N-BUTANE, AND N-PENTANE.
IND. ENG. CHEM. VOL 46, 1286-91 (JUN 1954)

EQUATION OF STATE, COMPRESSIBILITY FACTOR (GAS) (192 TO 503 DEGREES K)
THEORETICAL - EQUATION, TABLE OF COEFFICIENTS, GRAPH

452 ORLICEK,A.F.
DIE SPEZIFISCHE WARME VON GASES UND DAMPFEN. THE SPECIFIC HEAT OF GASES AND VAPORS.
MITT. CHEM. FORSCHUNGSINSTS. WIRTSCH. OSTERR. VOL. 7, NO. 4, 82-3 (1953)

SPECIFIC HEAT (NO CONSTANT PRESSURE OR VOLUME DESIGNATION) (GAS) (273 TO 1673 DEGREES K)
COMPILATION - SOURCES NOT GIVEN

453 ORLICEK,A.F.
GRAPHISCHE UMRECHNUNGSBILDER (NOMOGRAMM NR. 26) DIE DYNAMISCHE VISKOSITAT VON GASEN. THE DYNAMIC VISCOSITY OF GASES--NOMOGRAPH NO. 26.
MITT. CHEM. FORSCHUNGS-INST. WIRTSCH. OESTERR. VOL. 8, 150-1 (1954)

VISCOSITY (GAS) (173 TO 1273 DEGREES K)
COMPILATION - NOMOGRAPH

454 OTHMER,D.F. GILMONT,R.
CORRELATING PHYSICAL AND THERMODYNAMIC PROPERTIES. PART II.
PETROL. REFINER VOL. 31, 107-16 (1952)

VISCOSITY (GAS) (191 TO 742 DEGREES K), ENTROPY (GAS) (193 TO 533 DEGREES K)
CORRELATION - GRAPH, NOMOGRAM

455 OWENS,E.J. THODOS,G.
REDUCED THERMAL CONDUCTIVITY CHART FOR METHANE.
PROC. CONF. THERMODYN. TRANSPORT PROPERTIES FLUIDS,
LONDON, 1957, 163-68 (PUBL. 1958)

THERMAL CONDUCTIVITY (GAS) (57 TO 1337 DEGREES K
AND 0 TO 1800 ATM), CORRESPONDING STATES THEORY
CORRELATION - GRAPHS, EQUATIONS

456 PAI,M.U. SASTRI,S.R.S.
CORRELATION OF LATENT HEATS OF VAPOURIZATION.
INDIAN J. TECHNOL. VOL 4, NO. 3, 72-4 (MAR 1966)

HEAT OF VAPORIZATION
CORRELATION - GRAPH, EQUATIONS

457 PARISOT,P.E. JOHNSON,E.F.
LIQUID VISCOSITY ABOVE THE NORMAL BOILING POINT.
J. CHEM. ENG. DATA VOL. 6 NO. 2/(APR 1961)

VISCOSITY (LIQUID) (113 TO 173 DEGREES K)
EXPERIMENTAL - GRAPH, APPARATUS

458 PARKS,G.S. HUFFMAN,H.M.
SOME FUSION AND TRANSITION DATA FOR HYDROCARBONS.
IND. ENG. CHEM. VOL. 23, NO. 10, 1138-9 (1931)

HEAT OF FUSION (90.6 DEGREES K), HEAT OF TRANSITION
(SOLID-SOLID) (20.5 DEGREES K)
COMPILATION - TABLE (2 VALUES)

459 PAVLOVICH,N.V.
DETERMINATION OF VISCOSITY AND DENSITY OF NATURAL GAS AND
CALCULATION OF VISCOSITY DATA FOR METHANE.
IZVEST. VYSSHIKH UCHR. ZAVEDENII, NEFT I GAZ. NO. 8, 105-11
(1961) (IN RUSSIAN)

VISCOSITY (LIQUID, GAS) (112 TO 373 DEGREES K AND
20 TO 700 KG/SQ CM)
CALCULATED - TABLE (140 VALUES)

460 PAVLOVICH,N.V. TIMROT,D.L.
AN EXPERIMENTAL STUDY OF THE VISCOSITY OF METHANE.
TEPLOENERGETIKA VOL. 5, NO. 8, 61-65 (1958) (TRANSL. AVAIL. FROM
OTS NO. 62-24371 $1.60)

VISCOSITY (LIQUID, GAS) (103 TO 323 DEGREES K
AND 20 TO 200 ATM)
EXPERIMENTAL - TABLE (130 VALUES), GRAPH

461 PAVLOVICH,N.V. TIMROT,D.L.
EXPERIMENTAL INVESTIGATION OF THE PVT CURVE OF GASEOUS AND LIQUID
METHANE.
TEPLOENERGETIKA VOL 5, NO. 4, 69-75 (1958) (IN RUSSIAN)

P-V-T DATA (LIQUID, GAS) (112 TO 333 DEGREES K)
EXPERIMENTAL - TABLE (340 VALUES) GRAPHS, EQUATIONS, APPARATUS,

462 PERRY,J.H. HERRMANN,C.V.
THE JOULE-THOMSON EFFECT OF METHANE, NITROGEN, AND MIXTURES OF THESE GASES.
J. PHYS. CHEM. VOL. 39, 1189-95 (1935)

JOULE-THOMSON (GAS) (200 TO 400 DEGREES K AND 1 TO 100 ATM)
CALCULATION - TABLE (25 VALUES), GRAPH

463 PERRY,R.E. THODOS,G.
VAPROR PRESSURES OF THE LIGHT NORMAL SATURATED HYDROCARBONS.
IND. ENG. CHEM. VOL. 44, NO. 7, 1649-58 (JUL 1952)

VAPOR PRESSURE (LIQUID) (91 TO 191 DEGREES K)
THEORETICAL - EQUATION, GRAPH, TABLE (8 VALUES)

464 PETRUSHENKO,A.A.
PHASE DIAGRAM OF METHANE IN THE ENTHALPY-PRESSURE COORDINATES.
TR. INST. ISPOLZ. GAZA, AKAD. NAUK UKR. SSR VOL 3, NO. 4, 3-5 (1956) (IN RUSSIAN)

ENTHALPY (LIQUID, GAS)
DISCUSSION - EQUATIONS, NO DATA

465 PETZ,J.I.
X-RAY DETERMINATION OF THE STRUCTURE OF LIQUID METHANE.
J. CHEM. PHYS. VOL 43, NO. 7, 2238-43 (OCT 1965)

LATTICE CHARACTERISTICS (LIQUID STRUCTURE)
(96 TO 186 DEGREES K)
EXPERIMENTAL - GRAPHS, TABLE, EQUATIONS

466 PICKERING,S.F.
COMPRESSIBILITIES OF GASES.
NATL. BUR. STANDARDS MISC. PUBL. NO. 71 (NOV 1925)

COMPRESSIBILITY FACTOR (GAS) (273 TO 473 DEGREES K AND 0 TO 200 ATM)
COMPILATION - GRAPH, DATA FROM REFERENCE 307

467 PICKERING,S.F.
A REVIEW OF THE LITERATURE RELATING TO THE CRITICAL CONSTANTS OF VARIOUS GASES.
NATL. BUR. STANDARDS SCI. PAPERS VOL. 21, NO. 541, 597-629 (1926)
ALSO J. PHYS. CHEM. VOL 28, 97-123 (1924)

CRITICAL CONSTANTS
REVIEW - DATA FROM REFERENCES 86, 87, 88, 308, 445, 522, 652

468 PITZER,K.S.
THERMODYNAMICS OF GASEOUS PARAFFINS. SPECIFIC HEAT AND RELATED PROPERTIES.
IND. ENG. CHEM. VOL. 36, 829-31 (1944)

HEAT CAPACITY (P=CONSTANT), ENTROPY, ENTHALPY, FREE ENERGY (HELMHOLTZ FUNCTION) (GAS) (298 TO 1500 DEGREES K)
CORRELATION - TABLE (35 VALUES)

469 PITZER,K.S. LIPPMANN,D.Z. CURL,R.F.,JR. ET AL.
THE VOLUMETRIC AND THERMODYNAMIC PROPERTIES OF FLUIDS. II.
COMPRESSIBILITY FACTOR, VAPOR PRESSURE, AND ENTROPY OF
VAPORIZATION.
J. AM. CHEM. SOC. VOL. 77, 3433-40 (1955)

CORRESPONDING STATES, COMPRESSIBILITY FACTOR (LIQUID, GAS)
(160 TO 760 DEGREES K AND 9 TO 400 ATM), VAPOR PRESSURE,
HEAT OF VAPORIZATION (LIQUID) (107 TO 191 DEGREES K)
THEORETICAL - TABLE (800 VALUES), EQUATIONS, GRAPHS

470 POHRT,G.
BEITRAG ZUR KENNTNIS DER DIELEKTRIZITATSKONSTANTEN VON DAMPFEN.
***CONTRIBUTION TO THE KNOWLEDGE TO DIELECTRIC CONSTANTS OF
VAPORS.
ANN. PHYSIK VOL 42, 569-84 (1913)

DIELECTRIC CONSTANT (GAS) (273 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE)

471 PRAUSNITZ,J.M. MYERS,A.L.
KIHARA PARAMETERS AND SECOND VIRIAL COEFFICIENTS FOR CRYOGENIC
FLUIDS AND THEIR MIXTURES.
A. I. CH. E. JOURNAL VOL. 9, NO. 1, 5-11 (JAN 1963)

POTENTIAL FUNCTION (KIHARA), SECOND VIRIAL COEFFICIENT
(GAS) (120 TO 400 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH, TABLE OF PARAMETERS

472 PREDVODITELEV,A.S.
STATE EQUATIONS OF XENON AND METHANE)
INZHNER. FIZ. ZHUR. NAUK BELORUS S.S.R. VOL 7, NO. 1, 93-97
(1964) (IN RUSSIAN)

EQUATION OF STATE, COMPRESSIBILITY FACTOR (GAS)
(273 TO 423 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH, TABLE (40 VALUES)

473 QUIGLEY,T.H.
AN EXPERIMENTAL DETERMINATION OF THE VELOCITY OF SOUND IN DRY CO2
FREE AIR AND METHANE AT TEMPERATURES BELOW THE ICE POINT.
PHYS. REV. VOL. 67, NO. 9 AND 10, 298-303 (1945)

VELOCITY OF SOUND (GAS) (116 TO 253 DEGREES K
AND 1 ATM)
EXPERIMENTAL - TABLE (19 VALUES), GRAPH, APPARATUS

474 RAMASWAMY,K.L.
DIELECTRIC POLARIZATION AND THE FORM OF THE CARBON DIOXIDE
MOLECULE.
PROC. INDIAN ACAD. SCI. VOL. 6A, 301-11 (1937)

DIELECTRIC CONSTANT (GAS) (298 TO 466 DEGREES K
AND 0.5 ATM)
EXPERIMENTAL - TABLE (9 VALUES)

475 RAMAYYA,G.A. KULOOR,N.R.
MODIFIED LAW OF CORRESPONDING STATES.
INDIAN J. CHEM. VOL 2, NO. 8, 299-300 (AUG 1964)

CORRESPONDING STATES THEORY (LIQUID, GAS)
THEORETICAL - EQUATIONS

476 RAMAYYA,G.A. KULOOR,N.R.
PRINCIPLE OF CORRESPONDING STATES AND ITS EXTENSION TO THERMODYNAMIC PROPERTIES OF GASES.
INDIAN J. CHEM. VOL 3, 293-7 (JUL 1965)

ENTROPY (GAS) (153 TO 458 DEGREES K AND 4 TO 900 ATM),
CORRESPONDING STATES THEORY (GAS)
THEORETICAL - TABLE (110 VALUES), GRAPH

477 RANK,D.H. WICK,R.V. WIGGINS,T.A.
STIMULATED RAMAN EFFECT IN SOME TETRAHEDRAL MOLECULES.
APPL. OPT. VOL 5, NO. 1, 131-33 (JAN 1966)

RAMAN SPECTRUM (GAS)
EXPERIMENTAL - GRAPHS

478 RANKINE,A.O. SMITH,C.J.
ON THE VISCOSITIES AND MOLECULAR DIMENSIONS OF METHANE. SULPHURETTED HYDROGEN, AND CYANOGEN.
PHIL. MAG. VOL 42, 615-20 (1921)

VISCOSITY (GAS) (273 TO 373 DEGREES K)
EXPERIMENTAL - TABLE (3 VALUES)

479 REDLICH,O. DUNLOP,A.K.
THERMODYNAMICS OF SOLUTIONS, VIII: AN IMPROVED EQUATION OF STATE.
CHEM. ENG. PROGR. SYMPOSIUM SER. VOL. 59, NO. 44, 95-100 (1963)

EQUATION OF STATE, COMPRESSIBILITY FACTOR (GAS) (203 TO 511 DEGREES K AND 18 TO 293 ATM), CRITICAL CONSTANTS
THEORETICAL - EQUATIONS, GRAPH

480 REE, F.H.
THERMODYNAMIC FUNCTIONS AT LIQUID-VAPOR TRANSITION RANGE OF THE VAN DER WAALS, THE BERTHELOT, AND THE DIETERICI EQUATIONS OF STATE.
J. CHEM. PHYS. VOL 36, NO. 12, 3373-8 (1962)

EQUATION OF STATE, DENSITY (SAT. LIQUID AND SAT. VAPOR)
THEORETICAL - EQUATIONS

481 REE,T.S. REE,T. EYRING,H.
SIGNIFICANT STRUCTURE THEORY OF SURFACE TENSION.
J. CHEM. PHYS. VOL. 41, NO. 2, 524-30 (JUL 1964)

SURFACE TENSION (93 TO 113 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (3 VALUES)

482 REE,T.S. REE,T. EYRING,H.
SIGNIFICANT STRUCTURE THEORY OF TRANSPORT PHENOMENA.
J. PHYS. CHEM. VOL 68, NO. 11, 3262-67 (NOV 1964)

VISCOSITY (LIQUID) (91 TO 180 DEGREES K), DIFFUSION (LIQUID) (100 TO 130 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (15 VALUES)

483 REE,T.S. REE,T. EYRING,H.
FORTSCHRITTE IN DER THEORIE DER FLUSSIGKEITEN.***RECENT ADVANCES IN THE THEORY OF LIQUIDS.
ANGEW. CHEM. VOL 77, NO. 22, 993-1000 (1965) ALSO IN
ANGEW. CHEM. INTERN. ED. ENGL. VOL 4, NO. 11, 923-9 (NOV 1965)

MOLAR VOLUME (SAT. LIQUID), COMPRESSIBILITY FACTOR, ENTROPY, CRITICAL CONSTANTS, THEORY OF LIQUID STRUCTURE
THEORETICAL - EQUATIONS, GRAPHS

484 REE,T.S. REE,T. EYRING,H. PERKINS,R.
THE REDUCED THERMODYNAMIC FUNCTIONS FOR THE SIGNIFICANT STRUCTURE THEORY OF SIMPLE LIQUIDS.
J. PHYS. CHEM. VOL 69, NO. 10, 3322-28 (OCT 1965)

ENTROPY, INTERNAL ENERGY, DENSITY, VAPOR PRESSURE, CRITICAL CONSTANTS, THEORY OF LIQUID STRUCTURE
THEORETICAL - EQUATIONS, GRAPHS

485 REED,T.M. MCKINLEY,M.D.
ESTIMATION OF LENNARD-JONES POTENTIAL ENERGY PARAMETERS FROM LIQUID DENSITIES.
J. CHEM. ENG. DATA VOL 9, NO. 4, 553-56 (OCT 1964)

POTENTIAL FUNCTION (LIQUID)
THEORETICAL - EQUATIONS

486 REID,R.C. SOBEL,J.E.
ESTIMATION OF SATURATED LIQUID HEAT CAPACITIES ABOVE THE BOILING POINT.
IND. ENG. CHEM. VOL 4, NO. 3, 328-31 (AUG 1965)

HEAT CAPACITY (SAT. LIQUID) (133 TO 183 DEGREES K)
CALCULATION - EQUATIONS, GRAPHS,

487 REIS,T.
PROPRITES THERMODYNAMIQUES DES HYDROCARBURES. PREMIERE PARTIE. NOTIONS THEORIQUES CONCERNANT LE CALCUL DES DONNESS THERMODYNAMIQUES A PARTIR DES DONNEES SPECTROSCOPIQUES. THERMODYNAMIC PROPERTIES OF HYDROCARBONS. PART 1. THEORETICAL IDEAS CONCERNING THE CALCULATION OF THERMODYNAMIC DATA FROM SPECTROSCOPIC DATA.
REV. INST. FRANC. PETROLE ET ANN. COMBUSTIBLES LIQUIDES VOL. 1, 33-49 (1946)

SPECIFIC HEAT (IDEAL GAS) (297 TO 1000 DEGREES K), ENTROPY (IDEAL GAS)
THEORETICAL - EQUATIONS, TABLE (3 VALUES)

488 RENON,H. ECKERT,C.A. PRAUSNITZ,J.M.
MOLECULAR THERMODYNAMICS OF SIMPLE LIQUIDS. PURE COMPONENTS
IND. ENG. CHEM., FUNDAMENTALS VOL 6, NO. 1, 52-8 (FEB 1967)

INTERNAL ENERGY, SPECIFIC VOLUME, ISOTHERMAL COMPRESSIBILITY (LIQUID)
THEORETICAL - EQUATIONS, GRAPHS

489 RIBAUD,G.
A LA MESURE DES CHALEURS SPECIFIQUES DES GAZ ET DES VAPEURS.
MEASUREMENT OF THE SPECIFIC HEAT OF GASES AND VAPORS.
PUBL. SCI. TECH. MIN. AIR (FRANCE) NOTES TECH. NO. NT68,
182 (1957)

SPECIFIC HEAT RATIO (GAS)(283 TO 303 DEGREES K)
EXPERIMENTAL - GRAPH

490 RIBAUD,M.G.
CONSTANTES THERMODYNAMIQUES DES GAS AUX TEMPERATURES ELEVEES.
THERMODYNAMIC CONSTANTS OF GASES AT HIGH TEMPERATURES.
PUBL. SCI. TECH. MIN. AIR (FRANCE) NO. 266, 1-169 (1952)

SPECIFIC HEAT (P=CONSTANT), ENTROPY, ENTHALPY, FREE ENERGY (GIBBS FUNCTION) (IDEAL GAS) (298 TO 1500 DEGREES K), VAPOR PRESSURE (SOLID, LIQUID) (78 TO 115 DEGREES K), NORMAL BOILING POINT, HEAT OF VAPORIZATION, TRIPLE POINT TEMPERATURE, HEAT OF FUSION, CRITICAL TEMPERATURE, PRESSURE AND DENSITY
CALCULATION - TABLE (21 VALUES)

491 RICE,O.K.
INTERNAL VOLUME AND THE ENTROPY OF VAPORIZATION OF LIQUIDS.
J. CHEM. PHYS. VOL 5, 353-8 (1937)

SPECIFIC VOLUME (SAT. LIQUID) (111.7 DEGREES K)
CALCULATED - TABLE (1 VALUE)

492 RICHARDSON,A.C.B.
ISOTHERMS OF METHANE AT PRESSURES TO 80 ATMOSPHERES.
MARYLAND UNIV., COLLEGE PARK, MASTER THESIS (1958) 66 PP

P-V-T DATA (GAS) (273 TO 423 DEGREES K AND 17 TO 78 ATM), SECOND AND THIRD VIRIAL COEFFICIENTS (GAS) (273 TO 432 DEGREES K)
EXPERIMENTAL - TABLES (100 VALUES), EQUATIONS, GRAPHS, APPARATUS

493 RICHARDSON,H.P. GORDON,J.L. ET AL
THERMOPHYSICAL PROPERTIES OF SELECTED GASES BELOW 300 DEGREES K.
U. S. BUR. MINES, HELIUM RES. CENTER, AMARILLO, TEX., INTERN. REPT. NO. 34 (JUL 1963) 1 VOL, PROJ. NO. 3647

VISCOSITY (GAS) (90 TO 398 DEGREES K), THERMAL CONDUCTIVITY (GAS) (73 TO 423 DEGREES K), SPECIFIC HEAT (P=CONSTANT) (SOLID) (10 TO 87 DEGREES K), SPECIFIC HEAT (SAT. LIQUID) (95 TO 188 DEGREES K), SPECIFIC HEAT(P=CONSTANT,V=CONSTANT)(GAS)(73 TO 300 DEGREES K), VAPOR PRESSURE (LIQUID) (77 TO 199 DEGREES K), DIELECTRIC CONSTANT (SAT. LIQUID) (111.7 DEGREES K)
COMPILATION - TABLES (175 VALUES), GRAPHS,
DATA FROM REFERENCES 122, 265, 273, 275, 276, 300, 351, 643

494 RIEDEL,L.
ADDITIVES VERFAHREN ZUR ABSCHATZUNG DER KRITISCHEN TEMPERATUR AUS DEM NORMALEN SIEDEPUNKT.***ADDITIVE METHODS FOR THE ESTIMATION OF THE CRITICAL TEMPERATURES FROM THE NORMAL BOILING POINT.
CHEM. ING. TECH. VOL 24, NO. 6, 353-7 (JAN 1952)

CRITICAL TEMPERATURE
CALCULATED - ONE VALUE

495 RIEDEL,L.
DIE BERECHNUNG UNBEKANNTER THERMISCHER DATEN MIT HILFE DES ERWEITERTEN KORRESPONDENZPRONZIPS. (THE DETERMINATION OF UNKNOWN THERMAL DATA BY THE MODIFIED THEOREM OF CORRESPONDING STATES.)
KALTETECHNIK VOL. 9, NO. 5, 127-34 (1957)

COMPRESSIBILITY FACTOR (SAT. VAPOR), DENSITY (SAT. LIQUID), HEAT OF VAPORIZATION, SURFACE TENSION (90 TO 191 DEGREES K), CORRESPONDING STATES PRINCIPLE, CRITICAL CONSTANTS
CORRELATION - EQUATIONS, TABLES (600 VALUES), GRAPHS

496 RIEDEL,L.
DIE FLUSSIGKEITSDICHTE IM SATTIGUNGSZUSTAND. UNTERSUCHUNGEN UBER EINE ERWEITERUNG DES THEOREMS DER UBEREINSTIMMENDEN ZUSTANDE. II. THE LIQUID DENSITY IN SATURATED CONDITION. INVESTIGATION CONCERNING THE BROADENING OF THE CORRESPONDING STATE THEORY. II.
CHEM. ING. TECH. VOL. 26, NO. 5, 259-64 (1954)

CORRESPONDING STATES THEORY (SAT. LIQUID), CRITICAL TEMPERATURE
THEORY - EQUATIONS

497 RIEDEL,L.
KRITISCHER KOEFFIZIENT, DICHTE DES GESATTIGTEN DAMPFES UND VERDAMPFUNGSWARME. UNTERSUCHUNGEN UBER EINE ERWEITERUNG DES THEOREMS DER UBEREINSTIMMENDEN ZUSTANDE. III. CRITICAL COEFFICIENT, DENSITY OF SATURATED VAPOR AND HEAT OF VAPORIZATION. INVESTIGATION CONCERNING THE BROADENING OF THE CORRESPONDING STATE THEORY. III.
CHEM. ING. TECH. VOL. 26, 679-83 (1954)

COMPRESSIBILITY FACTOR, CORRESPONDING STATES THEORY (SAT. VAPOR) (114 TO 190 DEGREES K)
CALCULATED - GRAPH

498 RIEDEL,L.
DIE BESTIMMUNG UNBEKANNTER KRITISCHER DATEN VON NICHT ASSOZIIERENDEN STOFFEN. UNTERSUCHUNGEN UBER EINE ERWEITERUNG DES THEOREMS DER UBEREINSTIMMENDEN ZUSTANDE. TEIL V. THE DETERMINATION OF UNKNOWN CRITICAL DATA OF NON-ASSOCIATED MATERIALS. INVESTIGATION CONCERNING AN EXTENSION OF THE THEORY OF CORRESPONDING STATES. PART V.
CHEM. ING. TECH. VOL. 27, 475-80 (1955)

VAPOR PRESSURE, SATURATION DENSITY (LIQUID) (111 DEGREES K), THEORY OF CORRESPONDING STATES, CRITICAL CONSTANTS, NORMAL BOILING POINT
THEORETICAL - TABLE (6 VALUES), EQUATIONS, GRAPHS

499 RIEGGER,H.
THE DEPENDENCE OF THE DIELECTRIC CONSTANTS OF GASES UPON THE TEMPERATURE.
ANN. PHYSIK VOL. 59, 753-60 (1919)

DIELECTRIC CONSTANT (GAS) (119 DEGREES K AND 400 TO 760 MM HG)
EXPERIMENTAL - TABLE (3 VALUES), EQUATION, APPARATUS

500 ROCHKIND,M.M.
INFRARED ANALYSIS OF MULTICOMPONENT GAS MIXTURES.
ANAL. CHEM. VOL 39, NO. 6, 567-74 (MAY 1967)

INFRARED SPECTRA
EXPERIMENTAL - TABLE (2 VALUES)

501 ROLLEFSON,R. HAVENS,R.
INDEX OF REFRACTION OF METHANE IN THE INFRA-RED AND THE DIPOLE MOMENT OF THE C-H BOND.
PHYS. REV. VOL 57, 710-7 (1940)

INDEX OF REFRACTION (GAS)(273 DEGREES K AND 1 ATM)
EXPERIMENTAL - TABLE (49 VALUES), EQUATION, GRAPH

502 ROSS,J.F. BROWN,G.M.
VISCOSITIES OF GASES AT HIGH PRESSURES.
IND. ENG. CHEM. VOL. 49, 2026-33 (1957)

VISCOSITY (GAS) (223 TO 298 DEGREES K AND 1000 TO 10,000 LB/SQ. IN.)
EXPERIMENTAL - TABLE (28 VALUES), GRAPH

503 ROSSINI,F.D. ET AL.
SELECTED VALUES OF PHYSICAL AND THERMODYNAMIC PROPERTIES OF HYDROCARBONS AND RELATED COMPOUNDS.
AM. PET. INST. RESEARCH PROJECT NO. 44 (DEC 1952) 1050 P., CARNEGIE PRESS, PITTSBURGH, PA. (1953)

VAPOR PRESSURE (SOLID, LIQUID)(78 TO 121 DEGREES K), DENSITY (LIQUID), SURFACE TENSION (93 TO 113 DEGREES K), VISCOSITY (LIQUID)(88 TO 113 DEGREES K), HEAT CAPACITY (P=CONSTANT), ENTROPY, ENTHALPY (IDEAL GAS)(0 TO 1500 DEGREES K), HEAT OF VAPORIZATION (112 DEGREES K), HEAT OF FUSION (90 DEGREES K), NORMAL BOILING POINT, TRIPLE POINT TEMPERATURE, CRITICAL TEMPERATURE, PRESSURE, AND DENSITY
COMPILATION - TABLES (100 VALUES), EQUATION

504 ROSSINI,F.D. PITZER,K.S. TAYLOR,W.J. ET AL.
TABLES OF SELECTED VALUES OF PROPERTIES OF HYDROCARBONS.
NATL. BUR. STANDARDS CIRC. C-461 (1947)

VISCOSITY (LIQUID)(88 TO 113 DEGREES K), ENTHALPY, ENTROPY, HEAT CAPACITY (P=CONSTANT), FREE ENERGY (HELMHOLTZ FUNCTION) (IDEAL GAS)(0 TO 1500 DEGREES K), HEAT OF VAPORIZATION (111 DEGREES K), HEAT OF FUSION (90 DEGREES K), NORMAL BOILING POINT, TRIPLE POINT TEMPERATURE
COMPILATION - TABLES (65 VALUES)

505 ROSSINI,F.D. WAGMAN,D.D. EVANS,W.H. ET AL.
SELECTED VALUES CHEMICAL THERMODYNAMIC PROPERTIES.
NATL. BUR. STANDARDS CIRC. 500 (FEB 1952)

FREE ENERGY, ENTROPY, SPECIFIC HEAT (P=CONSTANT)(IDEAL GAS)
(298 DEGREES K)
REFERENCE WORK - TABLE (3 VALUES)

506 ROWLINSON,J.S.
LATTICE THEORIES OF LIQUIDS AND SOLUTIONS AT LOW TEMPERATURES.
DISCUSSIONS FARADAY SOC. VOL. 15, 52-6 (1953)

LIQUID STRUCTURE
THEORY - EQUATIONS, GRAPH

507 ROWLINSON,J.S.
LIQUID AND LIQUID MIXTURES.
BUTTERWORTHS SCIENTIFIC PUBLICATION LTD., LONDON (1959)

VAPOR PRESSURE (LIQUID), DENSITY, SPECIFIC HEAT, COEFFICIENT
OF EXPANSION, THERMAL PRESSURE (AT SATURATION) (90 TO 190
DEGREES K), ISOTHERMAL COMPRESSIBILITY, COEFFICIENT OF
EXPANSION (P = CONSTANT), THERMAL PRESSURE (V = CONSTANT),
SPECIFIC HEAT (P = CONSTANT, V = CONSTANT) (90 TO 130
DEGREES K), VELOCITY OF SOUND (LIQUID), ADIABATIC
COMPRESSIBILITY (90 TO 111 DEGREES K)
REFERENCE BOOK - TABLE (120 VALUES)

508 ROWLINSON,J.S. TOWNLEY,J.R.
THE APPLICATION OF THE PRINCIPLE OF CORRESPONDING STATES TO THE
TRANSPORT PROPERTIES OF GASES.
TRANS. FARADAY SOC. VOL. 49, 20-7 (1953)

VISCOSITY, DIFFUSION COEFFICIENT (GAS) (85 TO 400 DEGREES K),
CORRESPONDING STATES PRINCIPLE
THEORETICAL - GRAPHS

509 RUDENKO,N.S.
THE VISCOSITY OF LIQUID OXYGEN, NITROGEN, METHANE, ETHYLENE AND
AIR.
ZH. EKSPERIM. I TEOR FIZ. VOL. 9, 1078-80 (1939) (IN RUSSIAN)
(TRANSL. BY REDSTONE ARSENAL, ALA., NO. 32-62, AUG 1962)
(TRANSL. AVAIL. OTS NO. 62-32586)

VISCOSITY (LIQUID) (111 TO 168 DEGREES K)
EXPERIMENTAL - TABLE (6 VALUES), GRAPH, APPARATUS

510 RUDENKO,N.S.
MOLECULAR WEIGHT, DENSITY, AND VISCOSITY OF LIQUEFIED GASES.
ZHUR. TEKH. FIZ. VOL. 18, 1123-6 (1948) (IN RUSSIAN)

VISCOSITY (LIQUID)
CORRELATION - GRAPHS, EQUATION

511 RUDENKO,N.S. SCHUBNIKOV,L.W.
VISKOSITAT DES FLUSSIGEN METHANS AND ATHYLENS IN ABHANGIGKEIT VON DER TEMPERATUR. VARIATION IN THE VISCOSITY OF LIQUID METHANE AND ETHYLENE WITH TEMPERATURE.
PHYSIK. Z. SOWJETUNION VOL. 8, 179-84 (1935)

VISCOSITY (LIQUID) (90 TO 111 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES), GRAPH, APPARATUS

512 RUDENKO,N.S. SCHUBNIKOW,L.W.
DIE VISKOSITAT VON VERFLUSSIGTEN GASEN.
THE VISCOSITY OF LIQUEFIED GASES.
PHYSIK. Z. SOWJETUNION VOL 9, 83-90 (JUN 1936)

VISCOSITY (LIQUID) (90 TO 111 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES), GRAPH, APPARATUS

513 RUEDY,R.
SPECIFIC HEAT AND DISSOCIATION OF SIMPLE HYDROCARBONS.
CAN. J. RES. VOL. 7, 328-36 (1932)

SPECIFIC HEAT (V = CONSTANT) (GAS) (173 TO 673 DEGREES K)
INFRARED SPECTRUM (GAS)
CALCULATED - TABLE (8 VALUES), EQUATIONS

514 RUGHEIMER,J.H. HUBBARD,P.S.
NUCLEAR MAGNETIC RELAXATION AND DIFFUSION IN LIQUID CH4, CF4 AND MIXTURES OF CH4 AND CF4 WITH ARGON.
J. CHEM. PHYS. VOL. 39, 552 (AUG 1963)

DIFFUSION (LIQUID) (91 TO 109 DEGREES K)
EXPERIMENTAL - TABLE (10 VALUES), GRAPH, EQUATION

515 SACKMANN,H. SAUERWALD,F.
UBER DIE VOLUMENANDERUNG BEIM SCHMELZEN ORGANISCHER STOFFE, INSBESONDERE IN HOMOLOGEN REIHEN.
VOLUME CHANGE ON MELTING OF ORGANIC SUBSTANCES, ESPECIALLY IN HOMOLOGOUS SERIES.
Z. PHYSIK. CHEM. (LEIPZIG) VOL 195, 295-312 (1950)

SPECIFIC VOLUME (SOLID, LIQUID) (85 DEGREES K)
EXPERIMENTAL - GRAPH, APPARATUS

516 SAGE,B.H. BUDENHOLZER,R.A. LACEY,W.N.
PHASE EQUILIBRIA IN HYDROCARBON SYSTEMS. METHANE-N-BUTANE SYSTEM IN THE GASEOUS AND LIQUID REGIONS.
IND. ENG. CHEM. VOL. 32, 1262-77 (1940)

MOLAR VOLUME, ENTHALPY, FUGACITY (GAS) (293 TO 393 DEGREES K AND 0 TO 3000 PSI)
CALCULATED - TABLE (294 VALUES)

517 SAGE,B.H. LACEY,W.N.
EFFECT OF PRESSURE UPON VISCOSITY OF METHANE AND TWO NATURAL GASES.
TRANS. AM. INST. MINING MET. ENGRS. VOL 127, 118-34 (1938)

VISCOSITY (GAS) (308 TO 378 DEGREES K AND 0 TO 2500 PSI)
EXPERIMENTAL - GRAPH, APPARATUS

518 SAGE,B.H. LACEY,W.N.
PHASE EQUILIBRIA IN HYDROCARBON SYSTEMS. THE METHANE-ETHANE SYSTEM IN THE GASEOUS REGION.
IND. ENG. CHEM. VOL 31, 1497-509 (1939)

ENTHALPY, MOLAR VOLUME, FUGACITY, ENTROPY (GAS) (293 TO 393 DEGREES K AND 0 TO 3500 PSIA)
CORRELATION - TABLE (315 VALUES)

519 SAGE,B.H. OLDS,R.H. LACEY,W.N.
TENTATIVE PARTIAL ENTHALPIES FOR THE LIGHTER HYDROCARBONS.
CALIF. OIL WORLD VOL. 39, NO. 22, 29-46 (1946)

ENTHALPY (GAS) (293 TO 393 DEGREES K AND 0 TO 3000 LB/SQ. IN.)
CALCULATION - TABLE (80 VALUES)

520 SAHGAL,P.N. GEIST,J.M. ET AL.
NEW HIGH-PRESSURE FLOW CALORIMETER FOR ACCURATE MEASUREMENT OF ENTHALPY DATA.
INTERNATIONAL ADVANCES IN CRYOGENIC ENGINEERING VOL 10, 224-232 (PROC. 1964 CRYOGENIC ENG. CONF., PT. 2, SECT. M-U) PLENUM PRESS NEW YORK (1965) PAPER Q-8

ENTHALPY (GAS) (118 TO 223 DEGREES K AND 49.7 TO 1014.7 PSIA)
EXPERIMENTAL - TABLE (25 VALUES), GRAPH, EQUATION

521 SANGER,R.
TEMPERATUREMPFINDLICHKEIT DER DIELEKTRIZITATSKONSTANTEN VON CH4, CH3Cl, CH2Cl2, CHCl3, CCl4 IM DAMPFFORMIGEN ZUSTANDE.
TEMPERATURE SENSITIVENESS OF THE DIELECTRIC CONSTANT OF CH4, CH3Cl, CH2Cl2, CHCl3, CCl4 IN THE VAPOR STATE.
PHYSIK. Z. VOL. 27, 556-63 (1926)

DIELECTRIC CONSTANT (GAS) (292 TO 415 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES)

522 SARRAU,M.E.
SUR LA COMPRESSIBILITE DES GAZ. ON THE COMPRESSIBILITY OF GASES.
COMPT. REND. VOL. 94, 718-20 (1882)

P-V-T DATA (GAS) (288 TO 373 DEGREES K AND 40 TO 200 ATM), CRITICAL TEMPERATURE, PRESSURE, AND VOLUME
EXPERIMENTAL - TABLE (9 VALUES)

523 SATTERLY,J. PATTERSON,J.
ON THE LATENT HEATS OF VAPORIZATION OF METHANE AND ETHANE
TRANS. ROY. SOC. CAN., SECT. III, 123-7 (1919)

LATENT HEAT OF VAPORIZATION (LIQUID) (113 DEGREES K)
EXPERIMENTAL - ONE TABULAR VALUE

524 SAVITSKY,G.B. HORNIG,D.F.
INFRARED SPECTRA AND STRUCTURES OF THE CRYSTALLINE PHASES OF CH(4) AND CD(4).
J. CHEM. PHYS. VOL. 36, NO. 10, 2634-39 (1962)

INFRARED SPECTRA, CRYSTAL STRUCTURE (SOLID) (5 TO 40 DEGREES K)
EXPERIMENTAL - GRAPHS, TABLE (20 VALUES)

525 SAXENA,S.C. AGRAWAL,J.P.
THERMAL CONDUCTIVITY OF POLYATOMIC GASES AND RELAXATION PHENOMENA.
J. CHEM. PHYS. VOL 35, NO. 6, 2107-13 (DEC 1961)

THERMAL CONDUCTIVITY (GAS) (300 TO 573 DEGREES K)
THEORETICAL - TABLE (4 VALUES), EQUATIONS

526 SAXENA,S.C. BAHETHI,O.P.
TRANSPORT PROPERTIES OF SOME SIMPLE NONPOLAR GASES ON THE MORSE POTENTIAL.
MOL. PHYS. VOL. 7, NO. 2, 183-89 (1963-64)

SELF-DIFFUSION (GAS) (80 TO 350 DEGREES K), VISCOSITY (GAS) (115 TO 500 DEGREES K)
THEORETICAL - EQUATIONS, GRAPHS

527 SAXENA,S.C. GAMBHIR,R.S.
SECOND VIRIAL COEFFICIENT OF GASES AND GASEOUS MIXTURES ON THE MORSE POTENTIAL.
MOL. PHYS. VOL. 6, NO. 6, 577-83 (1963)

SECOND VIRIAL COEFFICIENT, POTENTIAL FUNCTION (GAS) (500 TO 1000 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH

528 SCHAFER,K.
TRANSPORTPHANOMENE IM TEMPERATURGEBIET BIS 1100 DEGREES C.***
(TRANSPORT PHENOMENA IN THE TEMPERATURE RANGE UP TO 1100 DEGREES C.)
DECHEMA MONOGRAPH. VOL 32, 61-73 (1959)

THERMAL CONDUCTIVITY (GAS) (373 TO 1000 DEGREES K)
EXPERIMENTAL - GRAPH, APPARATUS

529 SCHALLAMACH, A.
X-RAY INVESTIGATION OF THE STRUCTURE TRANSITION OF METHANE AT THE LAMBDA POINT.
PROC. ROY. SOC. (LONDON) VOL A171, 569-78 (1939)

CRYSTAL STRUCTURE (SOLID)(13.9 TO 50 DEGREES K), SOLID-SOLID PHASE TRANSITION
EXPERIMENTAL - TABLES, APPARATUS

530 SCHAMP,H.W. MASON,E.A. RICHARDSON,A.C.B. ALTMAN,A.
COMPRESSIBILITY AND INTERMOLECULAR FORCES IN GASES - METHANE.
PHYS. FLUIDS VOL 1, NO. 4, 329-37 (JUL-AUG 1958)

P-V-T DATA, SECOND AND THIRD VIRIAL COEFFICIENTS, POTENTIAL FUNCTIONS (GAS) (273 TO 423 DEGREES K AND 17 TO 233 ATM)
EXPERIMENTAL - TABLES (120 VALUES), EQUATIONS, APPARATUS

531 SCHEIBEL,E.G. JENNY,F.J.
NOMOGRAPHS FOR ENTHALPIES OF PURE HYDROCARBONS AND THEIR MIXTURES.
IND. ENG. CHEM. VOL. 37, NO. 10, 990-5 (1945)

ENTHALPY (LIQUID, GAS)
CORRELATION - NOMOGRAPH

532 SCHMID,C.
UBER DIE ZAHIGKEIT VON GASEN UND GASGEMISCHEN BEI HOHEREN TEMPERATUREN. ON THE VISCOSITY OF GASES AND GASEOUS MIXTURES AT HIGH TEMPERATURES.
GAS-U. WASSERFACH VOL. 85, 92-103 (1942)

VISCOSITY (GAS) (200 TO 800 DEGREES K)
EXPERIMENTAL - GRAPH, TABLE, APPARATUS

533 SCHOTTKY,W.F.
ZUR MESSUNG DER WARMELEITFAHIGKEIT VON GASEN BEI HOHEREN TEMPERATUREN.***MEASUREMENT OF THERMAL CONDUCTIVITY OF GASES AT HIGH TEMPERATURES.
Z. ELEKTROCHEM. VOL 56, NO. 9, 889-92 (1952)

THERMAL CONDUCTIVITY (GAS) (373 TO 773 DEGREES K)
EXPERIMENTAL - TABLE (9 VALUES), GRAPH, EQUATION

534 SCHUIL,A.E.
A NOTE ON THE VISCOSITY OF GASES AND MOLECULAR MEAN FREE PATH.
PHIL. MAG. VOL 28, 679-84 (1939)

VISCOSITY (GAS) (273 TO 523 DEGREES K)
DISCUSSION - TABLE (7 VALUES), EQUATION

535 SENFTLEBEN,H.
MESSUNG VON GASSTOFFWERTEN.***MEASUREMENT OF GASEOUS PARAMETERS.
ARCH. EISENHUETTENW. VOL 31, NO. 12, 709-10 (DEC 1960)

THERMAL CONDUCTIVITY, SPECIFIC HEAT (P = CONSTANT),
VISCOSITY (GAS) (273 TO 723 DEGREES K)
EXPERIMENTAL - TABLE (40 VALUES), EQUATIONS, APPARATUS

536 SENFTLEBEN,H.
NEU GEMESSENE WERTE DES WARMELEITVERMOGENS UND DER SPEZIFISCHEN WARME BEI VERSCHIEDENEN TEMPERATUREN FUR EINE REIHE VON GASEN.
NEW VALUES OF THERMAL CONDUCTIVITY AND SPECIFIC HEAT AT DIFFERENT TEMPERATURES FOR A SERIES OF GASES.
Z. ANGEW. PHYS. VOL. 17, NO. 2, 86-87 (1964)

THERMAL CONDUCTIVITY (GAS) (273 TO 673 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES)

537 SHERWOOD,A.E.
THE THIRD VIRIAL COEFFICIENT OF GASES AND AN EXPERIMENTAL APPARATUS FOR HIGH PRESSURE PHASE EQUILIBRIA.
CALIF. UNIV., BERKELEY, PH. D. THESIS (1964) 108 PP (AVAIL. UNIV. MICROFILMS, ANN ARBOR, MICH., ORDER NO. 64-13096)

THIRD VIRIAL COEFFICIENTS (GAS) (0 TO 600 DEGREES K)
THEORETICAL - EQUATIONS, GRAPH

538 SHERWOOD,A.E. PRAUSNITZ,J.M.
INTERMOLECULAR POTENTIAL FUNCTIONS AND THE SECOND AND THIRD VIRIAL COEFFICIENTS.
J. CHEM. PHYS. VOL. 41, NO. 2, 429-37 (JUL 1964)

POTENTIAL FUNCTIONS (LENNARD-JONES, KIHARA, SQUARE-WELL, EXP-6, SUTHERLAND), VIRIAL COEFFICIENTS (GAS) (204 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (5 VALUES)

539 SHERWOOD,T.K.
VELOCITY OF SOUND IN COMPRESSED GASES.
CHEM. ENG. DATA VOL. 7, NO. 1, 47-50 (JAN 1962)

VELOCITY OF SOUND, SPECIFIC HEAT (P=CONSTANT, V=CONSTANT)(GAS)
(172 TO 764 DEGREES K AND 9 TO 400 ATM)
CALCULATION - TABLE (1155 VALUES), GRAPH

540 SHIMOKAWA,J.
CONDENSATION THEORY BY CELL METHOD AND CALCULATION OF THE
CRITICAL TEMPERATURES OF VARIOUS GASES.
BUSSEIRON KENKYU VOL. 62, 138-51 (1953) (IN JAPANESE)

CRITICAL TEMPERATURE, CELL-SURFACE TENSION, PARTITION FUNCTION
THEORETICAL - ONE CALCULATED VALUE, EQUATIONS

541 SILBERBERG,I.H. KUO,P.K. MCKETTA,J.
PART. 2. COMPRESSIBILITY ISOTHERMS OF METHANE, ETHANE, PROPANE,
AND N-BUTANE AT LOW PRESSURES.
PETROL. ENGR. VOL 24, C9-C20 (MAY 1952)

COMPRESSIBILITY FACTOR (GAS) (300 AND 318 DEGREES K AND
1 TO 2 ATM)
EXPERIMENTAL - GRAPH, APPARATUS

542 SILVERBERG,P.M. WENZEL,L.A.
THE VARIATION OF LATENT HEAT WITH TEMPERATURE.
J. CHEM. ENG. DATA VOL 10, NO. 4, 363-66 (OCT 1965)

HEAT OF VAPORIZATION
CORRELATION - EQUATION, TABLE OF PARAMETERS

543 SIMON,F.E. KIPPERT,F.
MESSUNGEN ZUR ZUSTANDSGLEICHUNG DES FESTEN ARGONS. MEASUREMENTS
OF THE EQUATION OF STATE OF SOLID ARGON.
Z. PHYSIK. CHEM. VOL. 135, 113-29 (1929)

P-T DATA (SOLID)(73.7 TO 90.1 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES)

544 SLEDJESKI,E.W.
ISOBARIC HEAT CAPACITY OF METHANE.
IND. ENG. CHEM. VOL. 43, NO. 12, 2913-15 (1951)

SPECIFIC HEAT (P = CONSTANT) (GAS) (288 TO 423 DEGREES K
AND 500 TO 10000 PSIA)
CALCULATED - GRAPHS, EQUATIONS

545 SMITH,P.W.JR.
THE VELOCITY OF SOUND AT REDUCED PRESSURES.
J. ACOUST. SOC. AM. VOL. 23, NO. 6, 715 (NOV 1951)

VELOCITY OF SOUND (GAS) (290 DEGREES K AND 5 TO 760 MM HG)
REVIEW - ONE TABULAR VALUE, GRAPH
DATA FROM REFERENCE 1

546 SMITH,W.J.S. DURBIN,L.D. KOBAYASHI,R.
THERMAL CONDUCTIVITY OF LIGHT HYDROCARBONS AND METHANE-PROPANE MIXTURES AT LOW PRESSURES.
J. CHEM. ENG. DATA VOL. 5, 316-21 (1960)

THERMAL CONDUCTIVITY (GAS) (323 TO 423 DEGREES K AND 1 ATM)
EXPERIMENTAL - TABLE (5 VALUES), GRAPH, EQUATIONS

547 SONDAK,N.E. THODOS,G.
VAPOR PRESSURES, THE SATURATED ALIPHATIC HYDROCARBONS.
A.I.CH.E. JOURNAL VOL. 2, 347-53 (1956)

VAPOR PRESSURE (LIQUID)
CALCULATION - EQUATION, TABLE OF COEFFICIENTS

548 SOUDERS,M.,JR. MATTHEWS,C.S. HURD,C.O.
RELATIONSHIP OF THERMODYNAMIC PROPERTIES TO MOLECULAR STRUCTURE.
HEAT CAPACITIES AND HEAT CONTENTS OF HYDROCARBON VAPORS.
IND. ENG. CHEM. VOL. 41, 1037-48 (1949)

HEAT CAPACITY (IDEAL GAS) (100 TO 1600 DEGREES K)
CALCULATED - TABLE (28 VALUES)

549 SPENCER,H.M.
EMPIRICAL HEAT CAPACITY EQUATIONS OF VARIOUS GASES.
J. AM. CHEM. SOC. VOL. 67, 1859-60 (1945)

SPECIFIC HEAT (P=CONSTANT) (IDEAL GAS) (298 TO 1500 DEGREES K)
CALCULATED - EQUATION, TABLE OF COEFFICIENTS

550 SPENCER,H.M. FLANNAGAN,G.N.
EMPIRICAL HEAT CAPACITY EQUATIONS OF GASES.
J. AM. CHEM. SOC. VOL. 64, 2511-13 (1942)

SPECIFIC HEAT (GAS)
THEORETICAL - EQUATION, TABLE OF COEFFICIENTS

551 SPROW,F.B. PRAUSNITZ,J.M.
SURFACE TENSIONS OF SIMPLE LIQUID MIXTURES.
TRANS. FARADAY SOC. VOL 62, NO. 521, PT. 5, 1097-1104 (MAY 1966)

SURFACE TENSION (90 TO 95 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES), EQUATIONS, APPARATUS

552 STARLING,K.E. ELLINGTON,R.T.
VISCOSITY CORRELATIONS FOR NONPOLAR DENSE FLUIDS.
A.I.CH.E. JOURNAL 10, NO. 1, 11-15 (1964)

VISCOSITY (GAS)
THEORETICAL - EQUATIONS, TABLE OF COEFFICIENTS

553 STERNE,T.E.
THE VAPOR PRESSURE CONSTANT OF METHANE.
PHYS. REV. VOL. 42, 556-64 (NOV 1932)

VAPOR PRESSURE (LIQUID)
THEORETICAL - EQUATION

554 STEVENSON,R.
SOLID METHANE-CHANGES IN PHASE UNDER PRESSURE.
J. CHEM. PHYS. VOL. 27, NO. 3, 656-58 (SEPT 1957)

SOLID TRANSITIONS, PHASE DIAGRAM FOR SOLID
(0 TO 70 DEGREES K AND 0 TO 10000 ATM)
EXPERIMENTAL - GRAPH

555 STEWART,J.W.
PHASE TRANSITIONS AND COMPRESSIONS OF SOLID CH4, CD4, AND O2.
PHYS. CHEM. SOLIDS VOL. 12, 122-29 (1959)

SOLID TRANSITIONS, PHASE DIAGRAM FOR SOLID (0 TO 120 DEGREES K
AND 0 TO 19000 KG/SQ CM), ISOTHERMAL COMPRESSIBILITY
(SOLID) (77 DEGREES K AND 0 TO 19000 KG/SQ CM)
EXPERIMENTAL - GRAPH

556 STEWART,J.W.
SOLIDIFIED GASES AT HIGH PRESSURE.
PROC. INTERN. CONF. LOW TEMP. PHYS., 7TH, TORONTO, CANADA (1960),
671-72 (1961)

ISOTHERMAL COMPRESSIBILITY (SOLID) (77 DEGREES K
AND 1000 TO 19000 KG/SQ CM), SOLID TRANSITION
EXPERIMENTAL - TABLE (10 VALUES)

557 STEWART,J.W.
COMPRESSIBILITY OF SOLIDIFIED GASES TO 20,000 KG/CM2.
LOW TEMPERATURE PHYSICS AND CHEMISTRY, 522-25 (PROC.
5TH INTERNATL. CONF., J. R. DILLINGER, ED.) UNIVERSITY
OF WISCONSIN PRESS (1958)

P-V-T DATA (SOLID)(4 TO 77 DEGREES K AND 0 TO 20.000 KG/SQ CM)
EXPERIMENTAL - TABLE (25 VALUES), GRAPH

558 STEWART,J.W.
THE PROPERTIES OF SOLIDIFIED GASES AT HIGH PRESSURE.
PHYSICS OF HIGH PRESSURES AND THE CONDENSED PHASE, CHAPT. 5, 189-
240 (A. VAN ITTERBEEK, ED.) NORTH HOLLAND PUBL. CO., AMSTERDAM
(1964)
DDC AD 617 228

MELTING CURVE, DENSITY (SOLID), PHASE DIAGRAM FOR SOLID,
SPECIFIC HEAT (P=CONSTANT) (SOLID), THERMAL CONDUCTIVITY
(SOLID), NORMAL BOILING POINT, HEAT OF VAPORIZATION (LIQUID),
HEAT OF FUSION, SATURATION DENSITY (LIQUID), TRIPLE POINT
TEMPERATURE AND PRESSURE, CRITICAL TEMPERATURE,
PRESSURE AND DENSITY
REFERENCE WORK - TABLES, EQUATIONS, GRAPHS

559 STEWART,R.B. JOHNSON,V.J. (EDITORS)
A COMPENDIUM OF THE PROPERTIES OF MATERIALS AT LOW TEMPERATURE
(PHASE II)
NATL. BUR. STANDARDS, CRYOGENIC ENG. LAB., WADD TECH. REPT.
60-56, PART IV, (1961) ASD CONTR. NO. D.O. 33(616)59-6, 501 PP.

P-V-T DATA (GAS)(123 TO 273 DEGREES K AND 10 TO 8000 PSIA),
SPECIFIC VOLUME (SAT. LIQUID AND SAT. VAPOR)(98 TO 168 DEGREES
K), VELOCITY OF SOUND (SAT. LIQUID, GAS)(95 TO 253 DEGREES K)
COMPILATION - TABLES (300 VALUES), GRAPHS

560 STIEL,L.I. THODOS,G.
LENNARD-JONES FORCE CONSTANTS PREDICTED FROM CRITICAL PROPERTIES.
J. CHEM. ENG. DATA VOL. 7, NO. 2, 234-36 (APR 1962)

POTENTIAL FUNCTION, CRITICAL TEMPERATURE, PRESSURE, AND VOLUME
THEORETICAL - EQUATIONS, GRAPHS, TABLE OF CONSTANTS

561 STIEL,L.I. THODOS,G.
THE THERMAL CONDUCTIVITY OF NONPOLAR SUBSTANCES IN THE DENSE GASEOUS AND LIQUID REGIONS.
A.I.CH.E. JOURNAL VOL. 10, NO. 1, 26-30 (JAN 1964)

THERMAL CONDUCTIVITY (LIQUID, GAS)
CORRELATION - GRAPH, EQUATION

562 STIEL,L.I. THODOS,G.
THE VISCOSITY OF NONPOLAR GASES AT NORMAL PRESSURES.
A.I.CH.E. JOURNAL VOL 7, NO. 4, 611-15 (DEC 1961)

VISCOSITY (GAS)
THEORETICAL - EQUATIONS

563 STOCK,A.
DAMPFDRUCK-THERMOMETER. VAPOR PRESSURE THERMOMETER.
Z. ELEKTROCHEM. VOL 29, 354-8 (1923)

VAPOR PRESSURE (LIQUID)(89 TO 123 DEGREES K)
EXPERIMENTAL - TABLE (35 VALUES), APPARATUS

564 STOCK,A. HENNING,F. KUSS,E.
DAMPFDRUCKTAFELN FUR TEMPERATURBESTIMMUNGEN ZWISCHEN +25 GRAD UND -185 GRAD. VAPOR PRESSURE TABLES FOR DETERMINATIONS BETWEEN +25 DEGREES AND -185 DEGREES.
BER. DEUT. CHEM. GES. VOL. B54, 1119-29 (1921)

VAPOR PRESSURE (LIQUID) (91 TO 123 DEGREES K)
EXPERIMENTAL - TABLE (33 VALUES), EQUATION, APPARATUS

565 STOGRYN,D.E. HIRSCHFELDER,J.O.
INITIAL PRESSURE DEPENDENCE OF THERMAL CONDUCTIVITY AND VISCOSITY.
J. CHEM. PHYS. VOL. 31, 1545-54 (1959)

THERMAL CONDUCTIVITY (GAS) (171 TO 382 DEGREES K)
THEORETICAL - EQUATIONS, TABLE (15 VALUES)

566 STOLIAROV,E.A. IPATEV,V.V. TEODROVICH,U.P.
DETERMINATION DES COEFFICIENTS DE CONDUCTIBILITE THERMIQUE DES GAZ COMPRIMES. DETERMINATION OF THERMAL CONDUCTIVITY COEFFICIENTS OF COMPRESSED GASES. (H_2, N_2, AIR, CH_4, ET CO_2).
ZHUR. FIZ. KHIM. VOL. 24, 166-76 (1950) (IN RUSSIAN)
(TRANS. IN FRENCH AVAIL. FROM OTS, NO. 61-19587)

THERMAL CONDUCTIVITY (GAS) (273 TO 573 DEGREES AND 1 TO 500 KG/SQ CM)
EXPERIMENTAL - GRAPH, TABLE (18 VALUES), APPARATUS

567 STORCH,H.H.
THE ENTROPY AND FREE ENERGY OF METHANE.
J. AM. CHEM. SOC. VOL. 53, 1266-69 (1931)

ENTROPY, FREE ENERGY (GAS) (298 DEGREES K)
CALCULATED - ONE TABULAR VALUE, EQUATION

568 STORVICK,T.S. SPURLING,T.H. DE ROCCO,A.G.
INTERMOLECULAR FORCES IN GLOBULAR MOLECULES. IV. ADDITIVE THIRD VIRIAL COEFFICIENTS AND QUADRUPOLAR CORRECTIONS.
J. CHEM. PHYS. VOL 46, NO. 4, 1498-506 (FEB 1967)

THIRD VIRIAL COEFFICIENTS, POTENTIAL FUNCTION (GAS) (130 TO 450 DEGREES K)
THEORETICAL - EQUATION, GRAPH, TABLE (200 VALUES)

569 STRYLAND,J.C. CRAWFORD,J.E. MASTOOR,M.A.
MELTING TEMPERATURES OF KRYPTON, XENON, AND METHANE AT PRESSURES UP TO 3000 ATM.
CAN. J. PHYS. VOL. 38, 1546-47 (1960)

MELTING PRESSURE (111 TO 146 DEGREES K)
EXPERIMENTAL - TABLE (8 VALUES), EQUATION

570 STULL,D.R.
VAPOR PRESSURE OF PURE SUBSTANCES. ORGANIC COMPOUNDS.
IND. ENG. CHEM. VOL 39, 517-50 (1947)

VAPOR PRESSURE (SOLID, LIQUID)(67 TO 187 DEGREES K)
COMPILATION - TABLE (17 VALUES)

571 SU,G.J.
MODIFIED LAW OF CORRESPONDING STATES FOR REAL GASES.
IND. ENG. CHEM. VOL. 38, NO. 8, 803-6 (AUG 1946)

COMPRESSIBILITY FACTOR (GAS) (191 TO 382 DEGREES K AND 24 TO 216 ATM), CORRESPONDING STATES
THEORETICAL - GRAPH, EQUATIONS

572 SU,G.J. CHANG,C.H.
A GENERALIZED VAN DER WAALS EQUATION OF STATE FOR REAL GASES.
IND. ENG. CHEM. VOL. 38, NO. 8, 800-2 (1946)

EQUATION OF STATE (GAS)(191 TO 458 DEGREES K AND 10 TO 220 ATM)
THEORETICAL - EQUATIONS, TABLE (80 VALUES)

573 SU,G.J. CHANG,C.H.
GENERALIZED BEATTIE-BRIDGEMAN EQUATION OF STATE FOR REAL GASES.
J. AM. CHEM. SOC. VOL. 68, 1080-3 (1946)

EQUATION OF STATE (GAS) (273 TO 473 DEGREES)
THEORETICAL - EQUATION, TABLE OF COEFFICIENTS

574 SUTHERLAND,W.
THE VISCOSITY OF GASES AND MOLECULAR FORCE
PHIL. MAG. VOL 36, 507-31 (1893)

VISCOSITY (GAS)
THEORETICAL - TABLE OF COEFFICIENTS, EQUATION

575 SVEHLA,R.A.
ESTIMATED VISCOSITIES AND THERMAL CONDUCTIVITIES OF GASES AT HIGH TEMPERATURES.
NATL. AERONAUT. SPACE ADMIN. TECH. REPT. R-132 (1962) 140 PP
DDC AD 272 963

IDEAL GAS PROPERTY (SPECIFIC HEAT, P=CONSTANT),
VISCOSITY, THERMAL CONDUCTIVITY (GAS) (100 TO
5000 DEGREES K)
CALCULATED - TABLE (150 VALUES)

576 SWEIGERT,R.L. BEARDSLEY,M.W.
EMPIRICAL SPECIFIC HEAT EQUATIONS BASED UPON SPECTROSCOPIC DATA.
GEORGIA INST. TECHNOL. ENG. EXP. STA. VOL. 1, NO. 3, 3-11 (1938)

SPECIFIC HEAT (P=CONSTANT) (GAS) (300 TO 830 DEGREES K)
THEORETICAL - EQUATION, GRAPH

577 SWIFT,G.W. CHRISTY,J.A. KURATA,F.
LIQUID VISCOSITIES OF METHANE AND PROPANE.
A.I.CH.E. JOURNAL VOL. 5, 98-102 (1959)

VISCOSITY (LIQUID) (123 TO 190 DEGREES K AND
350 TO 710 LB/SQ. IN)
EXPERIMENTAL - TABLE (24 VALUES), GRAPH, EQUATION

578 SWIFT,G.W. LORENZ,J. KURATA,F.
LIQUID VISCOSITIES ABOVE THE NORMAL BOILING POINT FOR METHANE, ETHANE, PROPANE, AND N-BUTANE.
AM. INST. CHEM. ENGRS. J. VOL. 6, NO. 3, 415-19 (SEPT 1960)

VISCOSITY (LIQUID) (133 TO 191 DEGREES K AND 85
TO 765 LB/SQ IN)
EXPERIMENTAL - TABLE (10 VALUES), GRAPH

579 SZE,M.M-N. HSU,H.W.
SECOND VIRIAL COEFFICIENTS OF THE LENNARD-JONES (6,M) GASES.
J. CHEM. ENG. DATA VOL 11, NO. 1, 77-80 (JAN 1966)

SECOND VIRIAL COEFFICIENT (GAS) (100 TO 500 DEGREES K),
POTENTIAL FUNCTION
THEORETICAL - EQUATIONS, GRAPH, TABLE OF COEFFICIENTS

580 TAIT,W.C.
THE THEORY OF PHASE TRANSITIONS IN SOLID HEAVY METHANE.
PURDUE UNIV., LAFAYETTE, INDIANA, THESIS (1962)
(ABSTR. IN DISSERTATION ABSTR. VOL. 23, 670, 1962) (AVAIL. UNIV. MICROFILMS, ANN ARBOR, MICH., ORDER NO. 62-3490)

PHASE TRANSITIONS (SOLID)
THEORETICAL - EQUATIONS, GRAPHS, TABLES

581 TANS,A.M.P.
VISCOSITY OF GASEOUS METHANE.
BRIT. CHEM. ENG. J. VOL. 5, 358 (DEC 1960)

VISCOSITY (GAS) (323 TO 403 DEGREES K AND 7 TO 540 ATM)
CALCULATED - NOMOGRAM

582 TANS,A.M.P.
FIND COMPRESSIBILITY FOR - METHANE, ETHANE, ETHYLENE, PROPANE, PROPYLENE, BUTANE, BUTENE.
HYDROCARBON PROCESS. PETROL. REFINER VOL 45, NO. 1, 134 (JAN 1966).

COMPRESSIBILITY FACTOR (GAS) (143 TO 363 DEGREES K)
COMPILATION - NOMOGRAPH

583 TANS,A.M.P.
FIND SURFACE TENSION OF ALKANES.
HYDROCARBON PROCESS. PETROL. REFINER VOL 45, NO. 1, 142 (JAN 1966)

SURFACE TENSION (93 TO 373 DEGREES K)
CORRELATION - NOMOGRAPH

584 TCHERKEZOFF,N.
PROPIETES THERMODYNAMIQUES DES HYDROCARBURES. DUEXIEME PARTIE. DONNES NUMERIQUES ET EXEMPLES D≠APPLICATION. THERMODYNAMIC PROPERTIES OF HYDROCARBONS. PART 2. NUMERICAL DATA AND EXAMPLES OF APPLICATION.
REV. INST. FRANC. PETROLE ET ANN. COMBUSTIBLES LIQUIDS VOL. 1, 50-8 (1946)

ENTROPY, ENTHALPY (GAS) (298 DEGREES K)
CALCULATED - TABLE (2 VALUES)

585 THERMOPHYSICAL PROPERTIES RESEARCH CENTER
DATA BOOK. VOLUME II. NONMETALLIC ELEMENTS AND THEIR COMPOUNDS (GASEOUS AND LIQUID STATES).
PURDUE UNIV., LAFAYETTE, IND., (1962) CONTR. NO. AF 33(657)10545

VISCOSITY (GAS)(100 TO 375 DEGREES K AND 1 ATM), THERMAL CONDUCTIVITY (LIQUID, SAT. LIQUID, GAS)(90 TO 700 DEGREES K)
CORRELATION - TABLES (200 VALUES), GRAPHS

586 THIELE,A.A. WHITNEY,W.M. CHASE,C.E.
ULTRASONIC PROPAGATION IN SOLID METHANE.
PROCEEDINGS OF THE INTERN. CONF. ON LOW TEMPERATURE PHYSICS 9TH, PLENUM PRESS, NEW YORK, N. Y. (1965) PP 1122-5

VELOCITY OF SOUND (SOLID) (5 TO 40 DEGREES K)
EXPERIMENTAL - GRAPH

587 THODOS,G.
ON THE REDUCED FROST-KALKWARF VAPOR PRESSURE EQUATION.
IND. ENG. CHEM. FUNDAMENTALS VOL 2, NO. 1, 80 (1963)

VAPOR PRESSURE (LIQUID)
DISCUSSION - EQUATION

588 THODOS,G.
VAPOR PRESSURES OF NORMAL SATURATED HYDROCARBONS.
IND. ENG. CHEM. VOL. 42, 1514-26 (AUG 1950)

VAPOR PRESSURE (LIQUID) (91 TO 191 DEGREES K)
CALCULATED - TABLE (11 VALUES), EQUATIONS, GRAPH

589 THODOS,G.
CRITICAL CONSTANTS OF SATURATED ALIPHATIC HYDROCARBONS.
A.I.CH.E. J. VOL 1, 168-73 (JUN 1955)

EQUATION OF STATE (SAT. LIQUID, SAT. VAPOR),
CRITICAL TEMPERATURE AND PRESSURE
THEORETICAL - EQUATION, CONSTANTS FOR EQUATION

590 THOMAES,G. VAN STEENWINKEL,R.
THE SECOND VIRIAL COEFFICIENT OF METHANE AT LOW TEMPERATURE
NATURE VOL. 187, NO. 4733, 229-30 (1960)

SECOND VIRIAL COEFFICIENT (GAS) (108 TO 249 DEGREES K)
EXPERIMENTAL - TABLE (6 VALUES), GRAPH

591 THOMAES,G. VAN STEENWINKEL,R.
THE DIFFERENCE BETWEEN THE SECOND VIRIAL COEFFICIENTS OF ISOTOPIC
METHANES AT LOW TEMPERATURES.
MOL. PHYS. VOL 5, NO. 3, 307-11 (1962)

SECOND VIRIAL COEFFICIENT (GAS) (110 TO 295 DEGREES K)
DIFFERENCES IN VALUES FOR THE ISOTOPIC MODIFICATIONS OF
METHANE
EXPERIMENTAL - TABLE (21 VALUES), GRAPH, EQUATIONS

592 THOMAS,L.H.
AN ADDITIVE FUNCTION OF ENTROPY OF BOILING, AND THE PREDICTION OF
LATENT HEAT OF VAPORIZATION AND VAPOUR PRESSURE OF LIQUIDS.
J. CHEM. SOC. VOL. 161, 2132-52 (1959)

HEAT OF VAPORIZATION
DISCUSSION - EQUATIONS

593 TICKNER,A.W. LOSSING,F.P.
THE MEASUREMENT OF LOW VAPOR PRESSURES BY MEANS OF A MASS
SPECTROMETER.
J. PHYS. + COLLOID CHEM. VOL. 55, 733-40 (1951)

VAPOR PRESSURE (SOLID) (48 TO 78 DEGREES K), TRIPLE
POINT TEMPERATURE
EXPERIMENTAL - TABLE (13 VALUES), GRAPH, APPARATUS

594 TIMROT,D.L. PAVLOVICH,N.V.
THERMODYNAMIC PROPERTIES OF METHANE AT LOW TEMPERATURES AND HIGH
PRESSURES.
NAUCHN. DOKLADY VYSSHEI SHKOLY, ENERGET. NO. 1. 137-48 (1959)
(IN RUSSIAN)

VAPOR PRESSURE (LIQUID) (112 TO 191 DEGREES K),
P-V-T DATA (LIQUID, GAS) (112 TO 333 DEGREES K AND
0 TO 190 ATM)
EXPERIMENTAL - TABLES (9 VALUES), GRAPHS, EQUATIONS, APPARATUS

595 TOBOLSKY,A.V. KOZAK,J.J. CANTER,N.H. (PRINCETON UNIV., N. J.)
DIFFUSE PHASE TRANSITIONS - SPECIFIC-HEAT ANOMALY.
PHYS. REV. VOL 138, 2A, A651-660 (APR 1965)

SPECIFIC HEAT (P=CONSTANT) (SOLID) (19 TO 21 DEGREES K)
EXPERIMENTAL - GRAPH, EQUATION

596 TOLKACHEV,A.M. MANZHELII,V.G.
DENSITY OF SOLIDIFIED GASES.
SOVIET PHYS. SOLID STATE VOL 7, NO. 7, 1711-3 (JAN 1966) TRANSL.
FIZ. TVERD. TELA VOL 7, NO. 7, 2125-8 (JUL 1965)

DENSITY (SOLID) (20.4 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE), APPARATUS

597 TRAPEZNIKOWA,O.N. MILJUTIN,G.A.
SPECIFIC HEAT OF METHANE UNDER PRESSURE.
NATURE VOL 144, 632 (OCT 1939)

SPECIFIC HEAT (SOLID) (12 TO 30 DEGREES K)
EXPERIMENTAL - GRAPH

598 TRAPPENIERS,N.J. OOSTING,P.H.
SELFDIFFUSION IN GASEOUS AND LIQUID METHANE.
PHYS. LETTERS VOL 23, NO. 7, 445-7 (NOV 1966)

SELF-DIFFUSION (LIQUID, GAS) (90 TO 307 DEGREES K)
EXPERIMENTAL - GRAPHS

599 TRAUTZ,M.
UBER WAHRSCHEINLICHE WERTE VON CV FUR WASSERDAMPF, AMMONIAK,
METHAN UND HOHERE PARAFFINE. PROBABLE VALUES OF CV FOR WATER
VAPOR, NH3, METHANE, AND HIGHER PARAFFINS.
ANN. PHYSIK VOL. 9, 465-85 (1931)

SPECIFIC HEAT (V=CONSTANT) (GAS) (83.1 TO 873 DEGREES K)
COMPILATION - TABLE (28 VALUES)
DATA FROM REFERENCES 147, 172, 203, 240, 417, 600, 601

600 TRAUTZ,M. BADSTUBNER,W.
ABSCHATZUNG SPEZIFISCHER WARMEN VON GASEN AUS DAMPFDRUCKKURVEN.
CALCULATIONS OF THE SPECIFIC HEATS OF GASES FROM VAPOR PRESSURE
CURVES.
ANN. PHYSIK VOL. 8, 185-202 (1931)

SPECIFIC HEAT (P=CONSTANT) (GAS) (190.6 DEGREES K)
CALCULATED - TABLE (1 VALUE)

601 TRAUTZ, M. KAUFMANN, F.
KRITIK DER ELEKTRISCHEN DIFFERENTIALMETHODE ZUR MESSUNG VON CV
AN GASEN. IV. MESSUNGEN. DIE NORMIERUNG MIT ARGON. CRITICISM
OF THE ELECTRICAL DIFFERENTIAL METHOD OF MEASURING CV WITH GASES.
IV. MEASUREMENTS. THE STANDARDIZATION WITH ARGON.
ANN. PHYSIK VOL. 5, 581-605 (1930)

SPECIFIC HEAT (V=CONSTANT) (GAS) (293 TO 371 DEGREES K)
EXPERIMENTAL - TABLE (35 VALUES), EQUATIONS

602 TRAUTZ,M. SORG,K.G.
DIE REIBUNG, WARMELEITUNG UND DIFFUSION IN GASMISCHUNGEN. XVI.
DIE REIBUNG VON H2, CH4, C2H6, C3H8 UND IHREN BINAREN GEMIS-
CHEN. THE VISCOSITY, THERMAL CONDUCTIVITY AND DIFFUSION IN
GAS MIXTURES. XVI. THE VISCOSITY OF H2, CH4, C2H6, C3H8 AND
THEIR BINARY MIXTURES.
ANN. PHYSIK VOL 10, 81-96 (1931)

VISCOSITY (GAS) (293 TO 523 DEGREES K)
EXPERIMENTAL - TABLE (6 VALUES), EQUATIONS

603 TRAUTZ,M. ZINK,R.
DIE REIBUNG, WARMELEITUNG UND DIFFUSION IN GASMISCHUNGEN. XII. GASREIBUNG BEI HOHEREN TEMPERATUREN. THE VISCOSITY, CONDUCTION OF HEAT, AND DIFFUSION OF GAS MIXTURES. XII. THE VISCOSITY OF GASES AT HIGH TEMPERATURES.
ANN. PHYSIK VOL. 7, 427-52 (1930)

VISCOSITY (GAS) (292 TO 774 DEGREES K)
EXPERIMENTAL - TABLE (7 VALUES), EQUATION

604 TRAUTZ,M. ZUNDEL,A.
DIE MESSUNG DER WARMELEITUNG IN GASEN. MEASUREMENT OF THE HEAT CONDUCTIVITY OF GASES.
ANN. PHYSIK VOL. 17, NO. 4, 345-75 (JUN 1933)

THERMAL CONDUCTIVITY (GAS) (273 DEGREES K AND 500 MM HG)
EXPERIMENTAL - TABLE (2 VALUES)

605 TSATURYANTS,A.B. MAMEDOV,A.R.
JOULE-THOMSON COEFFICIENT OF METHANE.
IZV. AKAD. NAUK AZERB. SSR, SER. FIZ.-MAT. I TEKHN. NAUK VOL. 1962, NO. 3, 137-44 (1962) (IN RUSSIAN)

JOULE-THOMSON COEFFICIENT (GAS) (273 TO 473 DEGREES K)
CALCULATED - EQUATION, TABLE (100 VALUES), GRAPH

606 TSEDERBERG,N.V.
THERMAL CONDUCTIVITY OF COMPRESSED GASES.
TEPLOENERGETIKA VOL. 4, NO. 1, 45-8 (1957) (IN RUSSIAN)

THERMAL CONDUCTIVITY (GAS) (293 TO 473 DEGREES K)
EXPERIMENTAL - GRAPH, EQUATION

607 TSIEN,H.S.
THE PROPERTIES OF PURE LIQUIDS.
J. AM. ROCKET SOC. VOL. 23, 17-24, 35 (FEB 1953)

SPECIFIC HEAT (LIQUID) (100 DEGREES K)
CALCULATED - ONE TABULAR VALUE, EQUATION

608 UHLIG,H.H. KIRKWOOD,J.G. KEYES,F.G.
THE DEPENDENCE OF DIELECTRIC CONSTANTS OF GASES ON TEMPERATURE AND DENSITY.
J. CHEM. PHYS. VOL 1, 155-59 (FEB 1933)

DIELECTRIC CONSTANT (GAS) (273 AND 373 DEGREES K)
EXPERIMENTAL - TABLE (13 VALUES), GRAPH

609 VAN DAEL,W. VAN ITTERBEEK,A. THOEN,J. COPS,A.
SOUND VELOCITY MEASUREMENTS IN LIQUID METHANE.
PHYSICA VOL 31, NO. 11, 1643-48 (NOV 1965)

VELOCITY OF SOUND, SPECIFIC HEAT (P=CONSTANT, V=CONSTANT, SATURATION), ISOTHERMAL AND ADIABATIC COMPRESSIBILITY, SPECIFIC VOLUME (SAT. LIQUID) (94 TO 180 DEGREES K AND 0.4 TO 32 ATM)
EXPERIMENTAL - TABLES (200 VALUES), EQUATION, GRAPH

610 VAN ITTERBEEK,A.
BESTIMMUNG DER INNEREN REIBUNG VON SCHWEREN UND LEICHTEM METHAN ZWISCHEN 322 DEGREES K UND 90 DEGREES K. DETERMINATION OF THE VISCOSITY OF HEAVY AND LIGHT METHANE BETWEEN 322 DEGREES K AND 90 DEGREES K.
PHYSICA VOL. 7, NO. 9, 831-7 (NOV 1940)

VISCOSITY (GAS) (78 TO 321 DEGREES K AND 5 TO 159 MM HG)
EXPERIMENTAL - TABLE (12 VALUES), EQUATION, GRAPH

611 VAN ITTERBEEK,A.
ULTRASONICS AT LOW TEMPERATURES AND OTHER TOPICS.
PROC. INTERN. CONF. PHYSICS VERY LOW TEMP., MASS. INST. TECHNOL., CAMBRIDGE, 120 (SEPT 1949)

VELOCITY OF SOUND (LIQUID)(95 TO 112 DEGREES K)
EXPERIMENTAL - NO DATA
-ABSTRACT-

612 VAN ITTERBEEK,A. DE BOCK,A. VERHAEGEN,L.
VELOCITY OF SOUND IN LIQUID NITROGEN.
PHYSICA VOL. 15, NO. 7, 624-26 (1949)

VELOCITY OF SOUND (LIQUID) (90.5 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE)

613 VAN ITTERBEEK,A. STAES,K. VERBEKE,O. THEEUWES,F.
VAPOUR PRESSURE OF SATURATED LIQUID METHANE.
PHYSICA VOL 30, NO. 10, 1896-1900 (OCT 1964)

VAPOR PRESSURE (LIQUID) (112 TO 190 DEGREES K)
EXPERIMENTAL - TABLE (38 VALUES), EQUATIONS, GRAPHS, APPARATUS

614 VAN ITTERBEEK,A. VERBEKE,O. STAES,K.
MEASUREMENTS ON THE EQUATION OF STATE OF LIQUID ARGON AND METHANE UP TO 300 KG-CM-2 AT LOW TEMPERATURES.
PHYSICA VOL. 29, NO. 6, 742-54 (JUNE 1963)

P-V-T DATA (LIQUID)(115 TO 188 DEGREES K AND 9 TO 320 KG/SQ CM)
VAPOR PRESSURE (LIQUID) (123 TO 189 DEGREES K), EQUATION OF STATE, SPECIFIC HEAT (P=CONSTANT AND V=CONSTANT), SPECIFIC HEAT RATIO, VELOCITY OF SOUND, JOULE-THOMSON COEFFICIENT, ENTROPY (LIQUID) (120 TO 180 DEGREES K AND 20 TO 300 KG/SQ CM)
EXPERIMENTAL - TABLES (500 VALUES), GRAPH, EQUATIONS

615 VAN ITTERBEEK,A. VERHAEGEN,L.
MEASUREMENTS OF THE VELOCITY OF SOUND IN LIQUID ARGON AND LIQUID METHANE.
PROC. PHYS. SOC. (LONDON) VOL. B62, 800-4 (1949)

VELOCITY OF SOUND (LIQUID) (91 TO 112 DEGREES K
AND 148 TO 764 MM HG)
EXPERIMENTAL - TABLE (6 VALUES), GRAPH, EQUATIONS, APPARATUS

616 VANDENBOOM,J.L.
A COMPLETE DIGITAL COMPUTER SCHEME FOR THE REPRESENTATION AND PREDICTION OF GASEOUS P-V-T DATA AND VAPOR-LIQUID PHASE BEHAVIOR OF PURE COMPONENTS AND MIXTURES.
KANSAS UNIV., LAWRENCE, PH.D. THESIS (1964) 304 PP. ABSTR. IN DISSERTATION ABSTR. VOL 26, NO. 1, 255-6 (1965). AVAIL. UNIVERSITY MICROFILMS, ANN ARBOR, MICH., ORDER NO. 65-7005.

P-V-T DATA (LIQUID, GAS) (93 TO 1600 DEGREES K AND 15 TO 2000 PSIA)
CALCULATED - EQUATION, TABLES (500 VALUES), GRAPHS

617 VENNIX,A.J.
LOW TEMPERATURE VOLUMETRIC PROPERTIES AND THE DEVELOPMENT OF AN EQUATION OF STATE FOR METHANE.
RICE UNIV., HOUSTON, TEX., PH. D. THESIS (1966) 161 PP

P-V-T DATA, EQUATION OF STATE (GAS)(170 TO 273 DEGREES K AND 368 TO 9148 PSIA), VAPOR PRESSURE (LIQUID)(134 TO 190 DEGREES K), DENSITY (SAT. VAPOR)(139 TO 171 DEGREES K), CRITICAL TEMPERATURE AND PRESSURE
EXPERIMENTAL - TABLES (600 VALUES), GRAPHS, EQUATIONS, APPARATUS

618 VERBEKE,O. VAN ITTERBEEK,A.
EQUATION OF STATE OF LIQUEFIED GASES.
PHYSICS OF HIGH PRESSURES AND THE CONDENSED PHASE, 98-188, JOHN WILEY AND SONS, INC., NEW YORK (1965)

EQUATION OF STATE, P-V-T DATA, SPECIFIC HEAT (P=CONSTANT, V=CONSTANT), SPECIFIC HEAT RATIO (LIQUID)(120 TO 180 DEGREES K AND 50 TO 300 ATM), VAPOR PRESSURE (LIQUID)(100 TO 190 DEGREES K), TRIPLE POINT TEMPERATURE AND PRESSURE, NORMAL BOILING POINT, CRITICAL POINT TEMPERATURE AND PRESSURE
THEORETICAL - EQUATION, TABLES (200 VALUES), GRAPH

619 VERHAEGEN,L.
METINGEN OVER DE VOORTPLANTINGSSNELHEID VAN HET GELUID IN ENKELE VLOEIBAAR GEMAAKTE GASSEN. MEASUREMENTS OF THE SPEED OF PROPAGATION OF SOUND IN SOME LIQUEFIED GASES.
VERHANDEL. KONINKL. VLAAM. ACAD. WETENSCHAP. BELG. KL. WETENSCHAP. NO. 38 (1952) 65 PP

VELOCITY OF SOUND (LIQUID) (91 TO 112 DEGREES K)
EXPERIMENTAL - TABLE (13 VALUES), APPARATUS

620 VILLARS,D.S.
THE ENTROPY OF POLYATOMIC MOLECULES.
PHYS. REV. VOL. 38, 1552-64 (1931)

ENTROPY (GAS) (298 DEGREES K)
CALCULATED - 1 VALUE

621 VILLARS, D.S. SCHULTZE, G.
THE LOW TEMPERATURE ROTATIONAL HEAT CAPACITIES AND THE RELATIVE AMOUNTS OF THE NUCLEAR SINGLET, TRIPLET, AND QUINTET SYMMETRY MODIFICATIONS OF METHANE.
PHYS. REV. VOL 38, 998 (1931)

ROTATIONAL HEAT CAPACITY (SOLID)(19 TO 178 DEGREES K)
CALCULATED - TABLE (12 VALUES), EQUATIONS

622 VINES,R.G.
THE THERMAL CONDUCTIVITY OF ORGANIC VAPOURS. THE INFLUENCE OF MOLECULAR INTERACTION.
AUSTRALIAN J. CHEM. VOL. 6 AND VOL. 7, 1-26 (1953-54)

THERMAL CONDUCTIVITY (GAS) (109.4 DEGREES K AND 30 TO 70 ATM)
EXPERIMENTAL - GRAPH

623 VISWANATH,D.S. KULOOR,N.R.
ON LATENT HEAT OF VAPORIZATION, SURFACE TENSION, AND TEMPERATURE.
J. CHEM. ENG. DATA VOL 11, NO. 1, 69-72 (JAN 1966)

HEAT OF VAPORIZATION (112 DEGREES K)
THEORETICAL - EQUATION

624 VISWANATH,D.S. KULOOR,N.R.
ON A GENERALIZED WATSONS RELATION FOR LATENT HEAT OF VAPORIZATION
CAN. J. CHEM. ENG. VOL 45, NO. 1, 29-31 (FEB 1967)

LATENT HEAT OF VAPORIZATION (LIQUID) (100 TO 178 DEGREES K)
THEORETICAL - EQUATIONS

625 VISWANATH,D.S. SU,G-J.
GENERALIZED THERMODYNAMIC PROPERTIES OF REAL GASES. PART I.
GENERALIZED PVT BEHAVIOR OF REAL GASES.
A.I.CH.E. JOURNAL VOL 11, NO. 2, 202-04 (MAR 1965)

COMPRESSIBILITY FACTOR (GAS)(191 TO 477 DEGREES K AND 45 TO 400 ATM)
CALCULATED - GRAPH

626 VOGEL,H.
UBER DIE VISKOSITAT EINIGER GASE UND IHRE TEMPERATURABHANGIGKEIT BEI TIEFEN TEMPERATUREN. THE VISCOSITY OF CERTAIN GASES AND THE VARIATION WITH TEMPERATURE AT LOW TEMPERATURES.
ANN. PHYSIK VOL. 43, 1235-72 (1914)

VISCOSITY (GAS) (91 TO 273 DEGREES K AND 150 TO 750 MM HG)
EXPERIMENTAL - TABLES (7 VALUES),

627 VOLD,R.D.
THE HEAT CAPACITY OF METHANE AND ITS HALOGEN DERIVATES FROM SPECTROSCOPIC DATA.
J. AM. CHEM. SOC. VOL 57, 1192-95 (JUL 1935)

HEAT CAPACITY (P=CONSTANT), INTERNAL ENERGY (GAS) (273 TO 773 DEGREES K)
EXPERIMENTAL - TABLE (21 VALUES), EQUATION

628 VOLOVA,L.M.
INVESTIGATION OF THE EQUILIBRIUM OF THE COEXISTENCE OF THE LIQUID AND GASEOUS PHASES OF THE BINARY SYSTEM METHANE-ETHYLENE.
ZHUR. FIZ. KHIM. VOL 14, NO. 2, 268-76 (1940)

VAPOR PRESSURE (LIQUID)(127 TO 186 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES), GRAPHS, APPARATUS

629 VON UBISCH,H.
ON THE CONDUCTION OF HEAT IN RAREFIED GASES AND ITS MANOMETRIC APPLICATION. I.
APPL. SCI. RES. VOL. A2, 364-402 (1951)

HEAT CONDUCTION (GAS) (294 DEGREES K AND 0.1 TO 170 MM HG)
EXPERIMENTAL - GRAPHS

630 VORTMEYER,D.
DER DIFFERENTIELLE JOULE-THOMSON-EFFEKT VON GEMISCHEN UNPOLARER GASE BEIM DRUCK (PRESSURE APPROACHES ZERO). THEORETISCHE DEUTUNG EXPERIMENTELLER ERGEBNISSE.***THE JOULE-THOMSON-COEFFICIENT OF NONPOLAR GAS-MIXTURES AT PRESSURE APPROACHES ZERO. A THEORETICAL INTERPRETATION OF EXPERIMENTS.
KALTETECHNICK VOL. 18, NO. 10, 383-7 (OCT 1966)

JOULE-THOMSON COEFFICIENT (GAS) (150 TO 350 DEGREES K)
DISCUSSION - GRAPHS, EQUATIONS

631 WAGMAN,D.D. KILPATRICK,J.E. TAYLOR,W.J. PITZER,K.S. ROSSINI,F.D.
HEATS, FREE ENERGIES, AND EQUILIBRIUM CONSTANT OF SOME REACTIONS INVOLVING O2, H2, H2O, C, CO, CO2, AND CH4.
J. RES. NATL. BUR. STDS. VOL 34, 143 (1945)

SPECIFIC HEAT (P=CONSTANT), ENTROPY, ENTHALPY, FREE ENERGY (HELMHOLTZ FUNCTION)(GAS)(298 TO 1500 DEGREES K)
CORRELATION - TABLE (35 VALUES)
-THESE VALUES ARE FROM REFERENCE 468

632 WALLACE,C.B. SILBERBERG,I.H. MCKETTA,J.J.
ZS OF METHANE AND ETHANE AT LOW PRESSURE.
PETROL. REFINER VOL. 43, NO. 10, 177-80 (OCT 1964)

COMPRESSIBILITY FACTOR, SECOND VIRIAL COEFFICIENT (GAS)
(248 TO 348 DEGREES K AND 639 TO 1525 MM HG)
EXPERIMENTAL - TABLE (20 VALUES), GRAPH

633 WALTEMEYER,R.V.
THE THERMODYNAMIC PROPERTIES OF METHANE.
NORTHWESTERN UNIV., EVANSTON, MASTER THESIS (1958) 50 PP

VAPOR PRESSURE (LIQUID), SPECIFIC VOLUME, ENTHALPY, ENTROPY (SAT. LIQUID, SAT. VAPOR), LATENT HEAT OF VAPORIZATION(93 TO 191 DEGREES K), SPECIFIC HEAT(SAT. LIQ., SAT. VAPOR) (95 TO 190 DEGREES K), NORMAL BOILING POINT, TRIPLE POINT TEMPERATURE AND PRESSURE, CRITICAL TEMPERATURE AND PRESSURE
COMPILATION - TABLES (550 VALUES), GRAPHS
DATA FROM REFERENCES 22, 47, 61, 86, 87, 104, 107, 109, 124, 125, 129, 142, 156, 157, 158, 170, 171, 184, 185, 186, 236, 263, 290, 291, 308, 342, 350, 401, 445, 504, 522, 570, 628, 643, 652

634 WATKINSON,A.P. LIELMEZS,J.
ON THE LIQUID SELF-DIFFUSION COEFFICIENT BEHAVIOR IN THE VICINITY OF CRITICAL POINT.
J. CHEM. PHYS. VOL. 45, NO. 9, 3478-9 (NOV 1966)

SELF-DIFFUSION, THERMAL CONDUCTIVITY, VISCOSITY (LIQUID)
(191 DEGREES K)
DISCUSSION - TABLE (3 VALUES), GRAPHS

635 WATSON,H.E. RAMASWAMY,K.L.
THE REFRACTIVE INDEX DISPERSION AND POLARIZATION OF GASES.
PROC. ROY. SOC. (LONDON) VOL A156, 144-57 (1936)

INDEX OF REFRACTION (GAS) (273 DEGREES K)
EXPERIMENTAL - TABLE (3 VALUES)

636 WATSON,H.E. RAO,G.G. RAMASWAMY,K.L.
THE DIELECTRIC COEFFICIENTS OF GASES. II. THE LOWER HYDRIDES OF CARBON AND SILICON, OXYGEN, NITROGEN, OXIDES OF NITROGEN AND CARBON, AND FLUORIDES OF SILICON AND SULPHUR.
PROC. ROY. SOC. (LONDON) VOL. A143, 558-88 (1934)

DIELECTRIC CONSTANT (GAS) (298 DEGREES K AND 1 ATM)
EXPERIMENTAL - TABLE (8 VALUES)

637 WEBER,S.
UBER DIE WARMELEITFAHIGKEIT DER GASE. THE HEAT CONDUCTIVITIES OF GASES.
ANN. PHYSIK VOL. 82, 479-503 (1927)

THERMAL CONDUCTIVITY (GAS) (273 DEGREES K)
EXPERIMENTAL - TABLE (1 VALUE)

638 WEBER,S.
UNTERSUCHUNGEN UBER DIE WARMELEITFAHIGKEIT DER GASE. II.
RESEARCHES ON THE THERMAL CONDUCTIVITY OF GAS. II.
ANN. PHYSIK VOL. 54, 437-62 (1917)

THERMAL CONDUCTIVITY (GAS) (90.07 DEGREES K AND 2 TO 73.3 CM HG PRESSURE)
EXPERIMENTAL - TABLE (7 VALUES)

639 WHALLEY,E.
THE VISCOSITY OF GASES AND THE THEORY OF CORRESPONDING STATES.
CAN. J. CHEM. VOL. 32, 485-91 (JAN 1954)

VISCOSITY (GAS) (96 TO 2000 DEGREES K), CORRESPONDING STATES, POTENTIAL FUNCTION (SUTHERLAND) (LENNARD JONES 12-6) (EXP. 6)
CORRELATION - GRAPHS

640 WHALLEY,E.
INTERMOLECULAR FORCES AND CRYSTAL PROPERTIES OF METHANE.
PHYS. FLUIDS VOL. 2, 335-36 (1959)

HEAT OF VAPORIZATION (SOLID) (0 DEGREES K), SPECIFIC HEAT (SOLID) (10 TO 24 DEGREES K)
CALCULATED - EQUATIONS, GRAPH

641 WHALLEY,E.
ERRATUM. INTERMOLECULAR FORCES AND CRYSTAL PROPERTIES OF METHANE.
PHYS. FLUIDS VOL. 5, 742 (1962)

CORRECTION TO PRECEEDING ARTICLE

642 WHEELER,J.A. CANNON,C.V.
THE ROTATIONAL TRANSITION IN SOLID METHANE.
PHYS. REV. VOL 52, 684-5 (1937)

CRYSTAL PROPERTY, SOLID-SOLID PHASE TRANSITION (20 DEGREES K)
CALCULATION - EQUATIONS

643 WIEBE,R. BREVOORT,M.J.
THE HEAT CAPACITY OF SATURATED LIQUID NITROGEN AND METHANE
FROM THE BOILING POINT TO THE CRITICAL TEMPERATURE.
J. AM. CHEM. SOC. VOL. 52, 622-33 (1930)

SPECIFIC HEAT (SAT. LIQUID) (97.7 TO 188.2 DEGREES K),
ENTROPY (SAT. LIQUID, SAT. VAPOR), ENTROPY OF VAPORIZATION,
CRITICAL TEMPERATURE, PRESSURE, AND DENSITY
EXPERIMENTAL - TABLE (21 VALUES), GRAPH, EQUATION

644 WINN,E.B.
THE TEMPERATURE DEPENDENCE OF THE SELF-DIFFUSION COEFFICIENTS
OF ARGON, NEON, NITROGEN, OXYGEN, CARBON DIOXIDE, AND METHANE.
PHYS. REV. VOL 80, NO. 6, 1024-7 (DEC 1950).

SELF-DIFFUSION (GAS) (90 TO 353 DEGREES K AND 1 ATM)
EXPERIMENTAL - TABLE (5 VALUES)

645 WINN,E.B. NEY,E.P.
THE DETERMINATION OF THE SELF-DIFFUSION COEFFICIENT OF METHANE.
PHYS. REV. VOL 72, NO. 1, 77-8 (JUL 1947)

SELF-DIFFUSION (GAS) (292 TO 298 DEGREES K AND 6 CM HG)
DIFFUSION WITH ISOTOPIC MODIFICATIONS OF METHANE
EXPERIMENTAL - TABLE (7 VALUES), EQUATION

646 WINTER,E.R.S.
DIFFUSION PROPERTIES OF GASES PART III. THE DIFFUSION AND THERMAL
DIFFUSION COEFFICIENTS FOR ISOTOPIC GASES AND GAS MIXTURES
TRANS. FARADAY SOC. VOL. 46, 81-92 (1950)

THERMAL DIFFUSION (GAS) (405 TO 450 DEGREES K)
EXPERIMENTAL - TABLE (3 VALUES)

647 WIRTH,H. KLEMENC,A.
DIE WARMELEITFAHIGKEIT VON GASEN BEI NIEDEREN DRUCKEN. THE
THERMAL CONDUCTIVITIES OF GASES AT LOW PRESSURES.
MONATSH. CHEM. VOL. 83, 879-82 (1952)

THERMAL CONDUCTIVITY (GAS) (273 DEGREES K AND 0.01
TO 0.11 TORR)
EXPERIMENTAL - GRAPH, TABLE (1 VALUE), EQUATION

648 WOLFSON,B.T. DUNN,R.G.
THERMODYNAMIC PROPERTIES OF SELECTED SPECIES CONTAINING CARBON,
HYDROGEN, OXYGEN, HELIUM AND ARGON.
AERONAUT. RES. LABS., OFF. AEROSPACE RES., WRIGHT-PATTERSON AFB,
OHIO, REPT. NO. ARL 62-390 (AUG 1962) PROJ. NO. 7065, TASK NO.
70135, 335 PP
DDC AD 286 847

SPECIFIC HEAT (P=CONSTANT), ENTROPY, ENTHALPY, FREE
ENERGY (HELMHOLTZ FUNCTION) (GAS)(100 TO 6000 DEGREES K)
CALCULATED - TABLE (600 VALUES)

649 WOOLLEY,H.W.
THE REPRESENTATION OF GAS PROPERTIES IN TERMS OF MOLECULAR CLUSTERS.
J. CHEM. PHYS. VOL. 21, 236-41 (1953)

EQUATION OF STATE, THIRD VIRIAL COEFFICIENT (GAS), POTENTIAL FUNCTION (LENNARD JONES 6-12)
THEORETICAL - EQUATIONS, TABLES, GRAPH

650 WOOLLEY,H.W. BENEDICT,W.S.
GENERALIZED TABLES OF CORRECTIONS TO THERMODYNAMIC PROPERTIES FOR NONPOLAR GASES.
NATL. ADVISORY COMM. AERONAUT. TECH. NOTE NO. 3272 (MAR 1956) 62 PP

SPECIFIC HEAT (V=CONSTANT, P=CONSTANT), ENTROPY, ENTHALPY, VISCOSITY, SECOND VIRIAL COEFFICIENT, VELOCITY OF SOUND, EXPANSION COEFFICIENT, COMPRESSIBILITY FACTOR (GAS)
THEORETICAL - EQUATIONS, TABLES OF CORRECTIONS BASED ON LENNARD-JONES 6-12 POTENTIAL

651 WOOLSEY,G.
THE CRITICAL CONSTANTS OF THE INERT GASES AND OF HYDROGEN COMPOUNDS HAVING THE SAME NUMBER OF ELECTRONS PER MOLECULE.
J. AM. CHEM. SOC. VOL 59, 1577-8 (1937)

CRITICAL CONSTANTS
COMPILATION - TABLE (3 VALUES)

652 WROBLEWSKI,S.
SUR LES PROPRIETIES DU GAS DES MARAIS LIQUIDE ET SUR SON EMPLOI COMME REFRIGERANT. ON THE PROPERTIES OF LIQUID METHANE AND ON ITS USE AS REFRIGERANT.
COMPT. REND. VOL. 99, 136-7 (1884)

VAPOR PRESSURE (LIQUID) (142 TO 199 DEGREES K)
EXPERIMENTAL - TABLE (5 VALUES)

653 WYLIE,L.M.
THE VAPOR PRESSURE OF SOLID ARGON, CARBON MONOXIDE, METHANE, NITROGEN, AND OXYGEN FROM THEIR TRIPLE POINTS TO THE BOILING POINT OF HYDROGEN.
GEORGIA INST. TECHNOL., ATLANTA, MASTER THESIS (1958) 90 PP

VAPOR PRESSURE (SOLID) (20 TO 90 DEGREES K), HEAT CAPACITY (SOLID), ROTATIONAL HEAT CAPACITY (SOLID)
REVIEW - TABLES, EQUATIONS

654 YOSIM,S.J.
CALCULATION OF HEAT CAPACITIES AND COMPRESSIBILITIES OF LIQUIDS FROM A RIGID SPHERE EQUATION OF STATE.
J. CHEM. PHYS. VOL. 40, NO. 10, 3069-75 (MAY 1964)

SPECIFIC HEAT (P = CONSTANT) (LIQUID) (102 TO 125 DEGREES K)
CALCULATED - EQUATIONS, TABLE (5 VALUES)

655 YOSIM,S.J. OWENS
CALCULATION OF HEATS OF VAPORIZATION AND FUSION OF NONIONIC LIQUIDS FROM THE RIGID SPHERE EQUATION OF STATE.
ATOMICS INTERNATIONAL, CANOGA PARK, CALIF., REPT. NO. NAA-SR-8879 (AUG 1963), AND
J. CHEM. PHYS. VOL 39, 2222-6 (1963)

HEAT OF VAPORIZATION (111.7 DEGREES K)
CALCULATED - TABLE (1 VALUE)

656 YOUNG,S.
BOILING POINTS OF THE NORMAL PARAFFINS AT DIFFERENT PRESSURES.
PROC. ROY. IRISH ACAD. VOL. 38, 65-92 (1928)

VAPOR PRESSURE (LIQUID) (69.7 TO 173.6 DEGREES K)
CORRELATION - TABLE (45 VALUES)
DATA FROM REFERENCE 86, 308, 563, 564

657 ZAGORUCHENKO,V.A.
THE VAPOR PRESSURE OF LIQUID METHANE.
ZH. FIZ. KHIM. VOL 33, 326-27 (1959) (IN RUSSIAN)

VAPOR PRESSURE (LIQUID) (90 TO 190 DEGREES K), TRIPLE POINT TEMPERATURE AND PRESSURE, CRITICAL TEMPERATURE AND PRESSURE
CALCULATED - TABLES (50 VALUES), EQUATION

658 ZAGARUCHENKO,V.A. VASSERMAN,A.A.
EQUATION OF STATE AND THERMODYNAMIC PROPERTY OF METHANE.
INZHENER. FIZ. ZHUR. AKAD. NAUK BELORUSS S.S.R. VOL. 4, NO. 11, 59-63 (1961) (IN RUSSIAN)

COMPRESSIBILITY FACTOR (GAS) (203 TO 511 DEGREES K AND 1 TO 200 ATM)
THEORETICAL - EQUATIONS, TABLES (300 VALUES)

659 ZIEGLER,W.T.
THE VAPOR PRESSURES OF SOME HYDROCARBONS IN THE LIQUID AND SOLID STATE AT LOW TEMPERATURES.
NATL. BUR. STANDARDS TECH. NOTE NO. 4 (MAY 1959) 18 PP

VAPOR PRESSURE (SOLID, LIQUID) (48 TO 120 DEGREES K), TRIPLE POINT
CALCULATED - TABLE (22 VALUES), EQUATION

660 ZIEGLER,W.T. MULLINS,J.C. KIRK,B.S.
CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS, ESPECIALLY BELOW ONE ATMOSPHERE PRESSURE. III. METHANE.
GEORGIA INST. TECHNOL. ENG. EXPT. STA., ATLANTA, REPT. NO. TR 3 (AUG 1962) CONTR. NO. CST-7238, PROJ. NO. A-460, 60 PP

VAPOR PRESSURE (SOLID, LIQUID) (20 TO 112 DEGREES K), HEAT OF SUBLIMATION (20 TO 90 DEGREES K), HEAT OF VAPORIZATION (90 TO 112 DEGREES K), ENTHALPY, ENTROPY, FREE ENERGY (HELMHOLTZ) (IDEAL GAS) (20 TO 112 DEGREES K), SECOND VIRIAL COEFFICIENT (GAS)(100 TO 320 DEGREES K), TRIPLE POINT TEMPERATURE AND PRESSURE, NORMAL BOILING POINT
CALCULATION - TABLES (180 VALUES), GRAPHS, EQUATIONS

NBS TECHNICAL PUBLICATIONS

PERIODICALS

JOURNAL OF RESEARCH reports National Bureau of Standards research and development in physics, mathematics, chemistry, and engineering. Comprehensive scientific papers give complete details of the work, including laboratory data, experimental procedures, and theoretical and mathematical analyses. Illustrated with photographs, drawings, and charts.

Published in three sections, available separately:

- **Physics and Chemistry**

Papers of interest primarily to scientists working in these fields. This section covers a broad range of physical and chemical research, with major emphasis on standards of physical measurement, fundamental constants, and properties of matter. Issued six times a year. Annual subscription: Domestic, $5.00; foreign, $6.00*.

- **Mathematical Sciences**

Studies and compilations designed mainly for the mathematician and theoretical physicist. Topics in mathematical statistics, theory of experiment design, numerical analysis, theoretical physics and chemistry, logical design and programming of computers and computer systems. Short numerical tables. Issued quarterly. Annual subscription: Domestic, $2.25; foreign, $2.75*.

- **Engineering and Instrumentation**

Reporting results of interest chiefly to the engineer and the applied scientist. This section includes many of the new developments in instrumentation resulting from the Bureau's work in physical measurement, data processing, and development of test methods. It will also cover some of the work in acoustics, applied mechanics, building research, and cryogenic engineering. Issued quarterly. Annual subscription: Domestic, $2.75; foreign, $3.50*.

TECHNICAL NEWS BULLETIN

The best single source of information concerning the Bureau's research, developmental, cooperative and publication activities, this monthly publication is designed for the industry-oriented individual whose daily work involves intimate contact with science and technology—*for engineers, chemists, physicists, research managers, product-development managers, and company executives.* Annual subscription: Domestic, $1.50; foreign, $2.25*.

*Difference in price is due to extra cost of foreign mailing.

NONPERIODICALS

Applied Mathematics Series. Mathematical tables, manuals, and studies.

Building Science Series. Research results, test methods, and performance criteria of building materials, components, systems, and structures.

Handbooks. Recommended codes of engineering and industrial practice (including safety codes) developed in cooperation with interested industries, professional organizations, and regulatory bodies.

Special Publications. Proceedings of NBS conferences, bibliographies, annual reports, wall charts, pamphlets, etc.

Monographs. Major contributions to the technical literature on various subjects related to the Bureau's scientific and technical activities.

National Standard Reference Data Series. NSRDS provides quantitative data on the physical and chemical properties of materials, compiled from the world's literature and critically evaluated.

Product Standards. Provide requirements for sizes, types, quality and methods for testing various industrial products. These standards are developed cooperatively with interested Government and industry groups and provide the basis for common understanding of product characteristics for both buyers and sellers. Their use is voluntary.

Technical Notes. This series consists of communications and reports (covering both other agency and NBS-sponsored work) of limited or transitory interest.

CLEARINGHOUSE

The Clearinghouse for Federal Scientific and Technical Information, operated by NBS, supplies unclassified information related to Government-generated science and technology in defense, space, atomic energy, and other national programs. For further information on Clearinghouse services, write:

Clearinghouse
U.S. Department of Commerce
Springfield, Virginia 22151

Order NBS publications from:
Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

U.S. DEPARTMENT OF COMMERCE
WASHINGTON, D.C. 20230

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE