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**Heat Capacity of Liquids: Volume I  
Critical Review and Recommended Values**

**Milan Zábanský and Vlastimil Růžička Jr.**

*Department of Physical Chemistry  
Institute of Chemical Technology  
166 28 Prague 6, Czech Republic*

**Vladimír Majer**

*Laboratory of Thermodynamics and Chemical Engineering  
University Blaise Pascal & CNRS  
63177 Aubière, France*

**Eugene S. Domalski**

*Chemical Kinetics and Thermodynamics Division  
National Institute of Standards and Technology  
Gaithersburg, Maryland 20899-0001, USA*



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TABLE 1.26.3. Parameters of regression polynomial

Heat capacity type	No. data points total	points used	$s_w$	$s/R$	$s_r$ %	$s_b/R$	+/-
$C_p$	7	7	0.000	1.51-7	0.00	6.81-8	0
Temp. range K		$A_1$	$A_2$				Level of uncertainty
312.0-373.2		4.26656	-1.11823-1				VI

TABLE 1.26.4. Recommended values of heat capacities

Temp. (K)	320	330	340	350	360	370
$c_p$ (J K <sup>-1</sup> g <sup>-1</sup> )	0.38	0.38	0.38	0.38	0.38	0.37
$C_p$ (J K <sup>-1</sup> mol <sup>-1</sup> )	32.5	32.4	32.3	32.2	32.1	32.0

Name: Sulfur

Formula: S

CAS-RN: 7704-34-9

Group No.: 1-027

Molar Mass: 121.75

TABLE 1.27.1. Experimental heat capacities

Reference	Temp. range K	No. pnts	Error %	Purity %	method	Type capacity	Calorimeter	
							Type	Reference
54BRA/MOE	393.1-693.2	31S	0.50	not specified		$C_p$	BSAO	54BRA/MOE
59WES1	388.4-717.8	43S	0.20	99.999	melpt	$C_p$	BSAO	68WES/WES
67PAC	418.1	1	nosp	not specified		$C_p$	BDHT	79DU/COM
73KOM/MIL	393.1-598.2	43S	nosp	99.999	melpt	$C_p$	BDHO	73KOM/MIL
75MON	405.8-433.3	14	nosp	99.999	melpt	$C_m$	BSAO	75MON

TABLE 1.27.2a. Correlated heat capacities

Reference	Temp. range K	No. pnts used	$\sigma_r C$ %	$d_w$	$d/R$	$d_r$ %	$d_b/R$	+/-
Selected data								
73KOM/MIL	393.1-432.1	9	0.50#	1.189	2.33-2	0.59	1.34-4	1
Rejected data								
54BRA/MOE	(9.25-2, 2.38, 8.72-2, 4)			59WES1	(8.37-1, 15.59, 6.49-1, 8)			
67PAC	(5.84-1, 13.41, 5.84-1, 1)			75MON	(1.08, 17.93, 7.59-1, 11)			

TABLE 1.27.2b. Correlated heat capacities

Reference	Temp. range K	No. pnts used	$\sigma_r C$ %	$d_w$	$d/R$	$d_r$ %	$d_b/R$	+/-
Selected data								
73KOM/MIL	438.1-598.2	33	0.50#	1.089	2.87-2	0.54	3.93-4	1
Rejected data								
54BRA/MOE	(1.59-1, 3.50, 2.96-2, 0)			59WES1	(2.16-1, 4.65, 1.04-1, 4)			

TABLE 1.27.3a. Parameters of regression polynomial

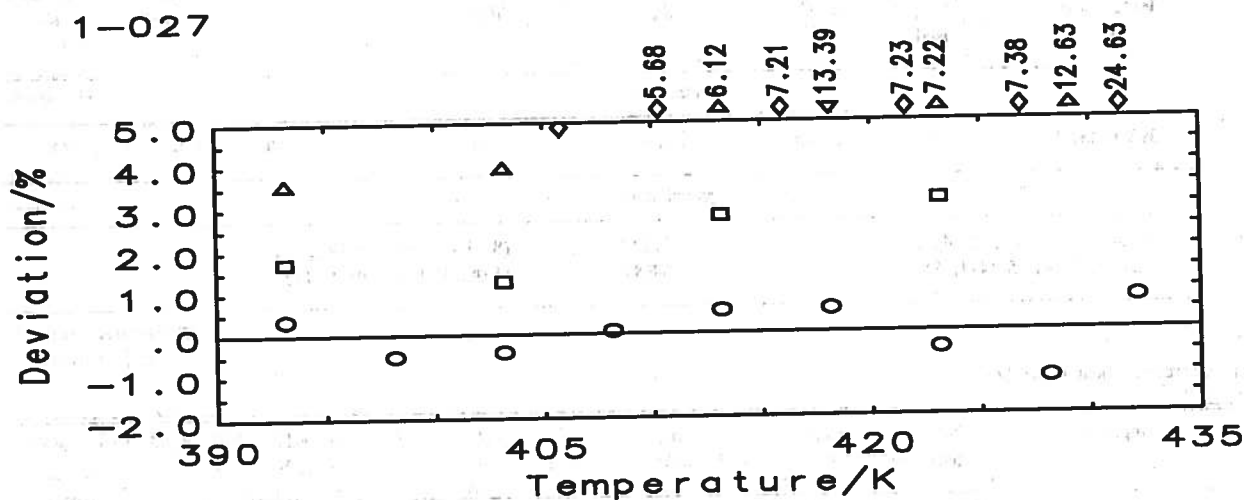
Heat capacity type	No. data points total	No. data points used	$s_w$	$s/R$	$s_r$ %	$s_b/R$	+/-
C	132	9	1.596	3.13-2	0.80	1.34-4	1
Temp. range K		$A_1$	$A_2$	$A_3$	$A_4$		Level of uncertainty
393.1-432.1		-1.85689+3	1.37277+3	-3.37560+2	2.76644+1		IV

TABLE 1.27.3b. Parameters of cubic spline polynomials

Heat capacity type	No. data points total	No. data points used	$s_w$	$s/R$	$s_r$ %	$s_b/R$	+/-
$C_p$	132	33	1.182	3.12-2	0.59 3.	93-4	1
Temp. range K		$A_1$	$A_2$	$A_3$	$A_4$		Level of uncertainty
438.1-510.0		5.90051+2	-3.46559+2	6.83281+1	-4.48944		IV
510.0-598.2		-6.70282+1	3.99583+1	-7.45952	4.64001-1		IV

TABLE 1.27.4. Recommended values of heat capacities

Temp. (K)	390	400	410	420	430		
$c_p$ ( $J K^{-1} g^{-1}$ )	0.948	0.975	0.972	0.984	1.052		
$C_p$ ( $J K^{-1} mol^{-1}$ )	30.40	31.25	31.17	31.54	33.74		
Temp. (K)	440	450	460	470	480	490	500
$c_p$ ( $J K^{-1} g^{-1}$ )	1.451	1.317	1.224	1.163	1.129	1.113	1.110
$C_p$ ( $J K^{-1} mol^{-1}$ )	46.53	42.25	39.24	37.30	36.19	35.70	35.59
Temp. (K)	510	520	530	540	550	560	570
$c_p$ ( $J K^{-1} g^{-1}$ )	1.112	1.113	1.113	1.112	1.112	1.113	1.116
$C_p$ ( $J K^{-1} mol^{-1}$ )	35.65	35.68	35.69	35.67	35.67	35.70	35.79
Temp. (K)	580	590	600				
$c_p$ ( $J K^{-1} g^{-1}$ )	1.121	1.129	1.142				
$C_p$ ( $J K^{-1} mol^{-1}$ )	35.95	36.22	36.61				

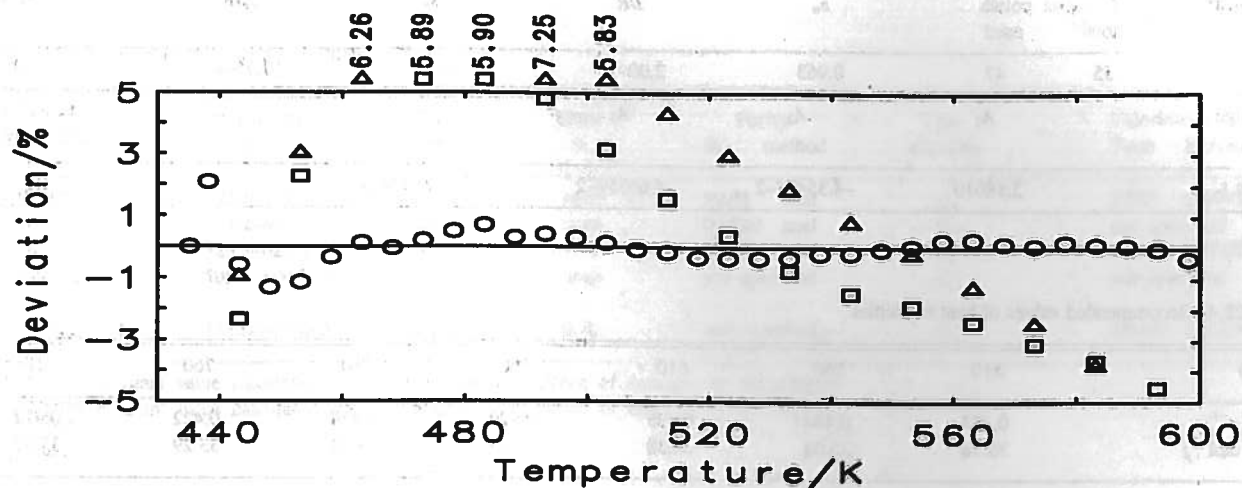


Selected data  
○ 73KOM/MIL

Rejected data  
□ 54BRA/MOE  
△ 59WES1  
▽ 67PAC  
◇ 75MON

## HEAT CAPACITY OF LIQUIDS

1-027



Selected data      Rejected data  
 ○ 73KOM/MIL      □ 54BRA/MOE  
    ▲ 59WES1

Name: Selenium  
 Formula: Se

CAS-RN: 7782-49-2  
 Group No.: 1-028  
 Molar Mass: 78.96

TABLE 1.28.1. Experimental heat capacities

Reference	Temp. range K	No. pts	Error %	Purity % method	Type capacity	Calorimeter Type Reference
26MON	490.1	1	nosp	not specified	$C_p$	DSIO 26MON
64GAT/HEI	N 503.1-533.2	4S	nosp	not specified	$C_p$	DSIO 63GAT/KRE
73GRO	502.9-994.1	48	nosp	99.9992 mēlpt	$C_p$	BSAO 67GRO
90JIN/WUN	523.2-548.2	2	nosp	99.999 anal	$C_p$	BDHT 90JIN/WUN

64GAT/HEI high purity of substance with traces of Al and Cu (0.0001 %)

TABLE 1.28.2. Correlated heat capacities

Reference	Temp. range K	No. pts used	$\sigma_r C$ %	$d_w$	$d/R$	$d_t$ %	$d_b/R$	+/-
Selected data								
73GRO	509.3-994.1	47	0.50#	0.921	1.91-2	0.46	1.76-4	-3
Rejected data								
64GAT/HEI	(2.60, 37.68, 2.59, 3)			90JIN/WUN	(7.38-2, 1.77, -7.34-2, -2)			