

mended values of *Z* at the normal pressure, together with the standard deviations.

Above 1 bar, there was only one source at each grid-point outside the dashed-lines in the tables, where the grid-point method could not be employed. The supplementary values of compressibility factor at these points were determined as follows.

For propane at  $-25$  to  $25^\circ\text{C}$  and above 10 bar, and at  $150^\circ\text{C}$  and 250 bar, the interpolation procedures were carried out along the isobar at common-fixed pressure value over the temperature range to the points where the most probable *Z* values were already given. In the procedures, the sets of the original data at their experimental temperatures were fitted together to the cubic or quartic equations of temperature with the respective weights given in the Committee. And for propane at 250 and  $275^\circ\text{C}$ , up to 250 and 300 bar, the sets of the original data with their weights given were fitted to the polynomials of pressure,  $Z=1+\sum_{n=1}^n a_n P^n$ , along the respective isotherms. Similarly, for propene at respective temperatures, the interpolation procedures were carried out along the isotherms up to moderate pressures fitting the sets of the original data with the weights given to the same polynomials as above.

In all cases, the interpolated *Z* values were in excellent agreement with the most probable *Z* values and the deviations from the original data at the intended grid-points were less than the experimental errors reported by the original authors or evaluated by the Committee. Thus the interpolated values were recommended for the supplementary shown in the tables. Moreover, the supplementary *Z* values

Table 4 Uncertainty of tabulated *Z* values for propane

Pressure 10 <sup>5</sup> Pa (=bar)	Temperature K (°C)												
	248.15 (-25)	273.15 (0)	298.15 (25)	323.15 (50)	348.15 (75)	373.15 (100)	398.15 (125)	423.15 (150)	448.15 (175)	473.15 (200)	498.15 (225)	523.15 (250)	548.15 (275)
1	0.040%	0.040%	0.040%	0.040%	0.040%	0.040%	0.040%	0.040%	0.040%	0.040%	0.040%	0.040%	0.040%
5			0.35	0.25	0.20	0.15	0.10	0.10	0.10	0.10	0.10	0.15	0.20
10	0.75	0.75		0.25	0.30	0.35	0.10	0.10	0.10	0.10	0.10	0.15	0.20
20	0.75	0.75	0.75		0.50	0.50	0.10	0.10	0.10	0.15	0.15	0.15	0.20
30	0.75	0.75	0.75	0.45		0.30	0.10	0.10	0.10	0.15	0.15	0.15	0.20
40	0.50	0.50	0.50	0.40		0.30	0.15	0.10	0.10	0.15	0.15	0.15	0.20
50	0.45	0.45	0.45	0.35	0.35		0.30	0.10	0.10	0.15	0.15	0.15	0.20
60	0.45	0.45	0.45	0.40	0.35		0.30	0.20	0.15	0.15	0.15	0.20	0.20
70			0.70	0.40	0.35	0.35		0.50	0.20	0.15	0.15	0.20	0.15
80			0.70	0.40	0.40	0.35		0.50	0.40	0.15	0.15	0.20	0.15
90			0.70	0.40	0.50	0.35	0.40	0.50	0.25	0.10	0.20	0.25	0.15
100			0.70	0.40	0.50	0.30	0.60	0.45	0.15	0.10	0.15	0.25	0.20
110			0.70	0.40	0.50	0.25	0.45	0.25	0.15	0.10	0.15	0.15	0.20
120			0.70	0.40	0.50	0.20	0.30	0.20	0.20	0.25	0.15	0.15	0.20
130			0.80	0.40	0.50	0.20	0.30	0.30	0.20	0.35	0.25	0.20	0.15
140			0.80	0.65	0.50	0.20	0.30	0.20	0.15	0.20	0.15	0.20	0.20
150			0.80	0.70	0.65	0.20	0.30	0.20	0.10	0.25	0.15	0.20	0.20
160			0.80	0.65	0.65	0.20	0.20	0.25	0.10	0.30	0.20	0.20	0.20
170			0.80	0.60	0.65	0.25	0.20	0.30	0.10	0.30	0.20	0.20	0.20
180			0.75	0.55	0.65	0.25	0.20	0.35	0.10	0.25	0.15	0.20	0.20
190			0.75	0.50	0.65	0.50	0.30	0.35	0.10	0.20	0.20	0.20	0.20
200			0.70	0.45	0.65	0.50	0.45	0.35	0.10	0.20	0.20	0.20	0.20
250							0.50	0.40	0.25	0.20	0.20	0.20	0.20
300											0.10		0.20

Table 5 Uncertainty of tabulated  $Z$ -values for propene

Pressure $10^5$ Pa (=bar)	Temperature K ( $^{\circ}$ C)										
	248.15 (-25)	273.15 (0)	298.15 (25)	323.15 (50)	348.15 (75)	373.15 (100)	398.15 (125)	423.15 (150)	448.15 (175)	473.15 (200)	498.15 (225)
1	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%	0.20%
5			0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
10			0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
20				0.25	0.10	0.10	0.10	0.10	0.10	0.10	0.10
30					0.10	0.10	0.10	0.10	0.10	0.10	0.10
40						0.20	0.10	0.10	0.20	0.10	0.15
50						0.30	0.10	0.10	0.20	0.10	0.10
60						0.20	0.10	0.25	0.25	0.10	0.10
70						0.10	0.10	0.35	0.35	0.10	0.10
80						0.10	0.10	0.20	0.30	0.10	0.10
90						0.10	0.15	0.10	0.10	0.10	0.10
100						0.10	0.10	0.10	0.10	0.10	0.15
110						0.10	0.10	0.10	0.10	0.10	0.20
120						0.15	0.10	0.10	0.10	0.10	0.25
130						0.20	0.15	0.10	0.15	0.10	0.20
140							0.20	0.20	0.15	0.15	0.15
150							0.15	0.25	0.10	0.15	0.15
160							0.15	0.20	0.15	0.15	0.15
170							0.15	0.20	0.20	0.30	0.10
180							0.10	0.20	0.20	0.30	0.10
190							0.10	0.20	0.20	0.20	0.10
200							0.10	0.20	0.20	0.25	0.10
250							0.10	0.15	0.15		
300							0.10	0.15	0.10		
350							0.15	0.15	0.10		
400							0.20	0.15	0.15		
450							0.20	0.20	0.20		
500							0.20	0.20	0.20		
600							0.20	0.20	0.20		

at  $-25$  and  $0^{\circ}$ C together with the original data at 10 bar, for propane, were fitted to cubic equations of pressure along the respective isotherms. Similar results as the above interpolations were obtained on the agreement of the values by the equations with the data used, and these calculated values at 10 bar were also tabulated for the supplementary.

The original data sources are few at most of the grid-points for propane and propene. Thus the standard deviations calculated have little significance in regard to the statistical meaning and they showed some unreasonable irregularities at some local grid-points practically. From these viewpoints, it is appropriate that the values determined as below are adopted for the uncertainty or the tolerance instead of the standard deviations. The standard deviations were plotted in graph against pressures on respective isotherms. The curves were drawn for respective sets of the standard deviations, with the