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STRUCTURE OF A NEW URANYL SULFATE HYDRATE, a- $\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$

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Allan Zalkin, Helena Ruben, and  
David H. Templeton

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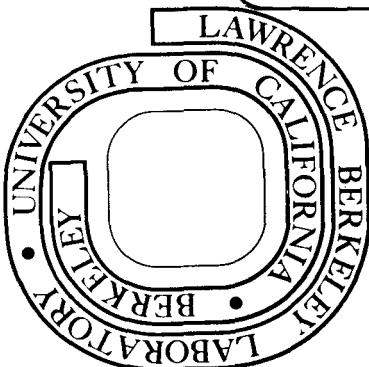
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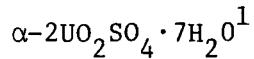
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## STRUCTURE OF A NEW URANYL SULFATE HYDRATE,



by Allan Zalkin\*, Helena Ruben, and David H. Templeton

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When an aqueous solution of uranyl sulfate and (+)-tartaric acid which was allowed to evaporate slowly, white crystals of tartaric acid and yellow crystals of a new uranyl sulfate hydrate both came out of solution. The X-ray crystal structure determination reported in this paper established that the yellow crystals are  $2\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$  with identical composition but different structure than a previously reported "metastable hydrate"<sup>2,3</sup> of uranyl sulfate; this latter compound will be referred to here as  $\beta\text{-}2\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$ . The  $\alpha$ -form crystal used for this study is air stable and showed no evidence of decomposition during the four weeks it was being studied and exposed to X-rays.

## EXPERIMENTAL SECTION

An irregular wedge-shaped crystal with approximate dimensions  $0.30 \times 0.11 \times 0.15$  mm was glued to a glass fiber and examined with a Picker FACS-I automatic diffractometer equipped with a graphite monochromator and a Mo X-ray tube ( $\lambda(\text{K}\alpha_1)$  0.70930 Å). Omega scans of the 600, 040, and 006 reflections showed half-widths of  $0.15^\circ$ ,

0.11° and 0.09° respectively. Absent reflections indicated space groups Pmca or  $P2_1$ ca; the subsequent Patterson function indicated two different uranium atoms which could only be accommodated in the non-centric space group  $P2_1$ ca.<sup>4</sup> The setting angles of 12 manually centered reflections ( $40^\circ < 2\theta < 50^\circ$ ) were used to determine by least-squares the cell parameters  $a = 11.227(b)$  Å,  $b = 6.790(3)$  Å, and  $c = 21.186(10)$  Å, and  $V = 1615$  Å<sup>3</sup>. For  $Z = 4$  and a molecular weight of 858.29 the calculated density is 3.53 g/cm<sup>-3</sup>; the calculated density of the β-form is 3.46 g/cm<sup>-3</sup>.

Intensity data were collected using the 0-2θ scan technique with a scan speed of 2°/min on 2θ. Each reflection was scanned from 0.75° before the  $K\alpha_1$  peak to 0.75° after the  $K\alpha_2$  peak, and backgrounds were counted for 4 s at each end of the scan range, offset by 0.5°. The temperature during data collection was  $21 \pm 1^\circ\text{C}$ . Three standard reflections were measured after every 200th scan. The 6177 scans, not including standards, resulted in 5640 unique intensities in which the Friedel pairs were not averaged. The data were corrected for absorption by an analytical method<sup>5</sup> using an estimated absorption coefficient of 193 cm<sup>-1</sup>; absorption corrections varied from 4.8 to 10.0.

A three dimensional Patterson function calculation revealed two crystallographically unique uranium atoms, each in the general position. Subsequent least-squares calculations and Fourier maps revealed the positions of all of the light atoms. A series of least-squares in which the function  $\sum w(|F_o| - |F_c|)^2 / \sum w F_o^2$  was minimized converged rapidly to the final structure. The expressions that were used in processing

the data and estimated the weights are given in the supplementary material; the "ignorance factor",  $p$ , was set to 0.05. Scattering factors from Doyle and Turner<sup>6</sup> were used, and anomalous dispersion corrections<sup>7</sup> were applied. When  $f''$  of uranium was treated as a variable as described elsewhere,<sup>8</sup> it refined to  $9.4 \pm 0.3$ , within a  $\sigma$  of the literature<sup>7</sup> value. This result shows that the absolute orientation of the structure was chosen correctly, and that the specium was substantially free of inversion twinning. The positions of all of the hydrogen atoms were estimated from the hydrogen bonding and were included in the calculation of the structure factors but not refined. Anisotropic thermal parameters were included only for uranium. No extinction correction was indicated nor applied. The discrepancy indices for 3437 data (Friedel pairs not averaged) where  $F^2 > 3\sigma$  are

$$R = \frac{\sum ||F_o| - |F_c||}{\sum |F_o|} = 0.049$$

$$R_w = [\sum w(|F_o| - |F_c|)^2 / \sum w |F_o|^2]^{1/2} = 0.054.$$

$R$  for all 5640 data is 0.103. The error in an observation of unit weight is 1.24. In the last cycle no parameter changed more than  $0.07\sigma$ .

#### RESULTS AND DISCUSSION

Atomic parameters, distances, and angles are listed in Tables I-III. The uranium atom is at the center of a pentagonal bipyramid

arrangement of oxygen atoms. These are joined in an infinite chain along the b axis by sulfate tetrahedra as is shown in Fig. 1. The  $\beta$ -form also contains chains made up of very similar units of two bipyramids and two tetrahedra, as shown also in Fig. 1 for comparison. The overall structures of these chains are different; in the chain in the  $\alpha$ -form the units are repeated according to the b-axis translation, while in the  $\beta$ -form the replication is by a glide plane. As a result, alternate units in the latter case have reversed orientations. The interatomic distances and angles are comparable in the two forms.<sup>2</sup> The molecular volume is two percent smaller in the  $\alpha$ -form indicating a very slightly more efficient packing.

All the water molecules are hydrogen bonded, and distances and angles for these bonds are listed in Table III.

#### ACKNOWLEDGEMENT

We thank Dr. L. K. Templeton for assistance with the refinement of  $f''$ .

Supplementary Materials Available: Data processing formulas, table of angles, and the listing of structure factor amplitudes (24 pages). Ordering information is given on any current masthead page.

REFERENCE AND NOTES

1. This work was supported by the Division of Chemical Sciences, Office of Basic Energy Sciences, U.S. Department of Energy.
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3. E. H. P. Cordfunke, J. Inorg. Nucl. Chem. 34, 1551 (1972).
4.  $P2_1ca$  is a non-standard description of  $Pca2_1$ . The equivalent positions for  $P2_1ca$  are:  $x, y, z; 1/2 + x, -y, -z; x, -y, 1/2 + z; 1/2 + x, y, 1/2 - z$ .
5. L. K. Templeton and D. H. Templeton, Abstracts, American Crystallographic Association Proceedings, Series 2, Vol. 1, 1973, P. 143.
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Table I. Positional and Thermal Parameters<sup>a</sup> with Estimated Standard Deviations<sup>b</sup> for  $\alpha$ - $2\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$ .

ATOM	X	Y	Z	B		
U(1)	0	.19112(9)	.07967(3)	*		
U(2)	.38767(7)	.70137(9)	.20043(3)	*		
S(1)	.1164(3)	.6890(7)	.1033(2)	1.23(6)		
S(2)	.2961(4)	.1933(8)	.1512(2)	1.49(6)		
O(1)	-.095(1)	.184(2)	.1451(6)	3.6(2)		
O(2)	.089(1)	.189(2)	.0113(7)	3.6(2)		
O(3)	.451(1)	.703(2)	.1239(7)	3.6(2)		
O(4)	.326(1)	.705(2)	.2758(7)	3.3(2)		
O(5)	.043(1)	.514(2)	.1194(7)	3.0(2)		
O(6)	.188(1)	.734(2)	.1604(6)	3.0(2)		
O(7)	.189(1)	.647(3)	.0492(9)	4.6(3)		
O(8)	.030(1)	.850(2)	.0940(7)	3.8(3)		
O(9)	.318(1)	.382(2)	.1826(8)	4.0(3)		
O(10)	.341(1)	.039(2)	.1947(7)	3.3(2)		
C(11)	.352(1)	.190(3)	.0904(8)	4.5(3)		
O(12)	.164(1)	.167(2)	.1467(6)	3.2(2)		
O(13)	.534(1)	.483(2)	.2460(7)	3.3(2)		
O(14)	-.126(1)	.439(2)	.0274(7)	4.1(3)		
O(15)	.656(2)	.204(3)	.1869(9)	4.8(3)		
O(16)	-.155(1)	.020(2)	.0223(7)	3.4(2)		
O(17)	.556(1)	.892(2)	.2368(7)	3.4(2)		
O(18)	.595(2)	.290(4)	.073(1)	8.3(6)		
O(19)	.248(2)	.725(3)	.4069(9)	4.6(3)		
H(1)	.5376	.4933	.291			
H(2)	.5749	.3904	.2263			
H(3)	-.1889	.4109	.0021			
H(4)	-.1691	.5349	.0496			
H(5)	.7386	.1982	.1726			
H(6)	.636	.2337	.1481			
H(7)	-.1522	-.0499	-.0155			
H(8)	-.1857	-.0787	.0458			
H(9)	.6006	.8398	.271			
H(10)	.5901	.9967	.2199			
H(11)	.6272	.3111	.0313			
H(12)	.5154	.2564	.0777			
H(13)	.1952	.7538	.4414			
H(14)	.2741	.7182	.3629			
*ATOM	811	822	833	812	813	823
U(1)	1.05(2)	.98(2)	1.54(2)	.01(4)	-.27(2)	-.01(2)
U(2)	.95(2)	.95(2)	1.51(2)	.03(4)	-.18(2)	-.02(2)

Table I. Continued

<sup>a</sup>The anisotropic temperature factor has the form  $\exp(-.25(B_{11}h^2a^*)^2 + 2B_{12}hka^*b^* + \dots)$ .

<sup>b</sup>Here and in the following tables the number in parenthesis are the estimated standard deviation in the least significant digit.

<sup>c</sup>Hydrogen positions were estimated and not refined. An arbitrary isotropic thermal parameters of 6.0 Å<sup>2</sup> was assigned to each of the hydrogen atoms.

Table II. Selected Interatomic Distances ( $\text{\AA}$ )

U(1)-O(1)	1.75(2)	U(2)-O(3)	1.77(2)
-O(2)	1.76(2)	-O(4)	1.74(2)
-O(5)	2.40(2)	-O(6)	2.41(2)
-O(8)	2.36(2)	-O(9)	2.34(2)
-O(12)	2.33(2)	-O(10)	2.36(2)
-O(14)	2.47(2)	-O(13)	2.41(2)
-O(16)	2.42(2)	-O(17)	2.41(2)
S(1)-O(5)	1.49(2)	S(2)-O(9)	1.46(2)
-O(6)	1.48(2)	-O(10)	1.48(2)
-O(7)	1.44(2)	-O(11)	1.44(2)
-O(8)	1.47(2)	-O(12)	1.50(2)

Table III. Hydrogen bond distances and angles.

Atoms	Distances (Å)		Angle (deg)
O(5) -O(13)-O(15)	2.86(2)	2.65(3)	120(1)
O(7) -O(14)-O(19)	2.70(3)	2.77(2)	94(1)
O(1) -O(15)-O(18)	2.94(3)	2.58(3)	89(1)
O(11)-O(16)-O(19)	2.78(3)	2.73(3)	96(1)
O(6) -O(17)-O(15)	2.84(2)	2.62(3)	113(1)
O(7) -O(18)-O(11)	2.83(4)	2.83(4)	121(1)
O(2) -O(19)-O(4)	2.90(3)	2.92(3)	157(1)

FIGURE CAPTION

Fig. 1. Comparison of the arrangement in the  $\alpha$  and  $\beta$  forms of  
 $2\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$ .

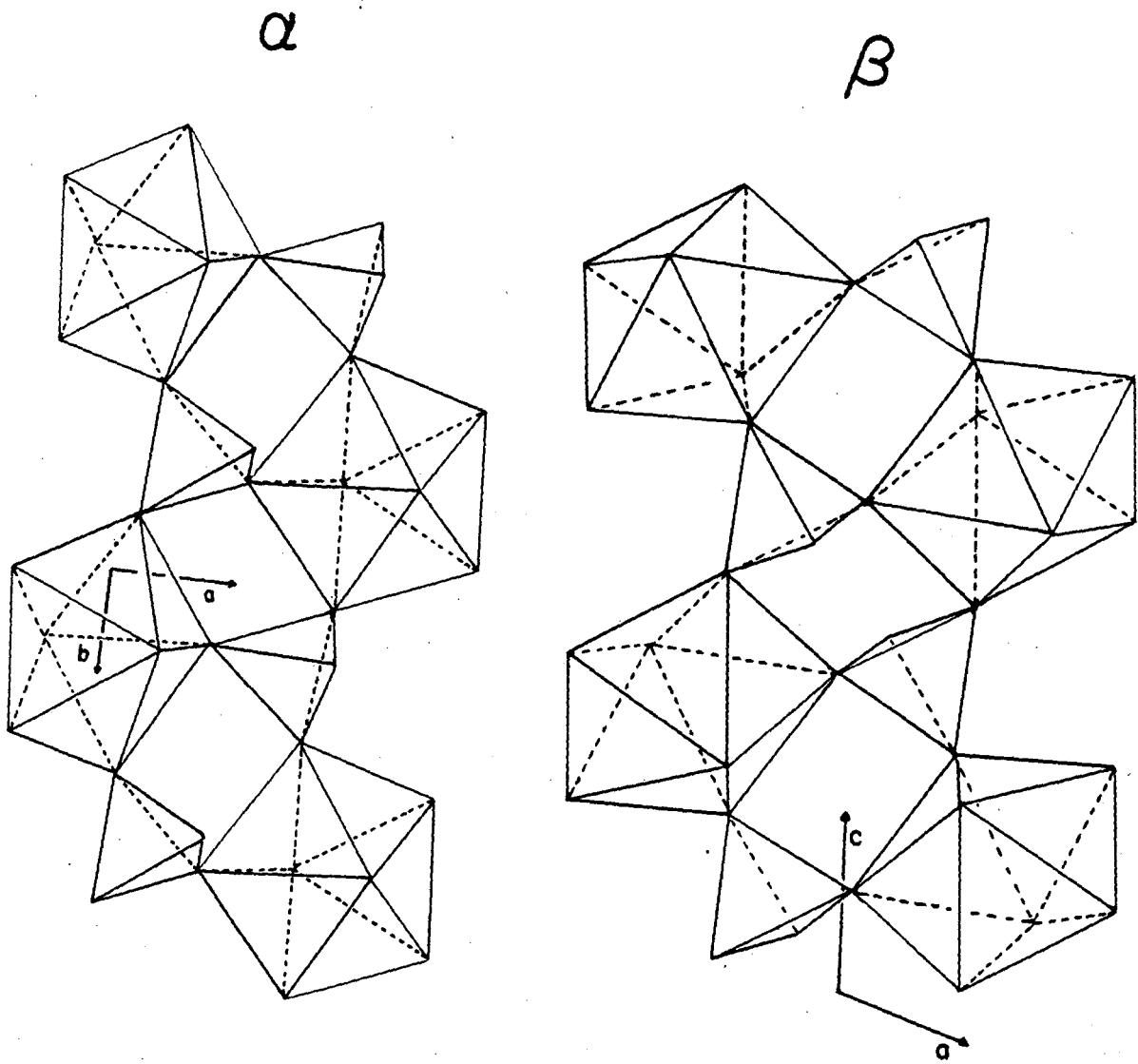


Fig. 1

XBL 784-8190

Supplementary Materials for the paper:

"Structure of the Uranyl Sulfate Hydrate,  $\alpha\text{-}2\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$

by Allan Zalkin, Helena Ruben and David H. Templeton

DATA PROCESSING FORMULAE

$$I = C - (t_c/2t_b)(B_1+B_2)$$

$$\sigma(B) = \text{Max}[(t_c/2t_b)(B_1+B_2)^{\frac{1}{2}}, (t_c/2t_b)|B_1-B_2|]$$

$$\sigma(I) = [C + \sigma^2(B)]^{\frac{1}{2}}$$

$$F^2 = (D \cdot A/L_p) I$$

$$\sigma(F^2) = (D \cdot A/L_p) \sigma(I)$$

$$F_a^2 = \Sigma F^2/n$$

$$\sigma(F_a^2) = [\sum \sigma^2(F^2)/n]^{\frac{1}{2}} \quad \text{When } S(F_a^2) > 4\sigma(F_a^2), \sigma(F_a^2) \text{ is replaced by } S(F_a^2).$$

$$S(F_a^2) = [\sum |F^2 - F_a^2|^2 / n(n-1)]^{\frac{1}{2}}$$

$$\sigma(F_o^2) = [\sigma^2(F_a^2) + (pF_a^2)^2 + q^2]^{\frac{1}{2}}$$

$$F_o = (F_a^2)^{\frac{1}{2}}$$

$$\sigma(F) = F_o - [F_a^2 - \sigma(F_o^2)]^{\frac{1}{2}} \text{ when } \sigma(F_o^2) \leq F_a^2 \text{ or } [\sigma(F_a^2)]^{\frac{1}{2}} \text{ when } \sigma(F_a^2) > F_a^2$$

$$L_p = [\cos^2 2\theta_m + \cos^2 2\theta] / [\sin 2\theta (1 + \cos^2 2\theta_m)]$$

$$wtg = 1/\sigma^2(F)$$

C = counts recorded during a scan

$\theta_m$  = monochromater angle

I = individual raw intensity,  
background removed.

$\theta$  = crystal diffraction angle

$t_c$  = scan count time

S = scatter

$t_b$  = background count time

a = average

$B_1$  = individual background count

q = additional uncertainty that  
affects the weak intensities

$\sigma(B)$  = estimated standard dev-  
iation of the total back-  
ground count

p = estimate of non-statistical  
errors

F = structure factor

wtg = weighting factors in least  
squares

D = decay correction; an empir-  
ically applied correction  
obtained from the fluctuations  
of the standard reflections.

A = absorption correction

Lp = Lorentz and polarization  
corrections

Selected Bond Angles

Atoms	Angle (deg)	Atoms	Angle (deg)
O(5) -U(1)-O(14)	69.6(5)	O(6) -U(2)-O(9)	73.5(5)
O(14)-U(1)-O(16)	71.8(5)	O(9) -U(2)-O(13)	73.9(5)
O(16)-U(1)-O(8)	72.5(5)	O(13)-U(2)-O(17)	70.6(5)
O(8) -U(1)-O(12)	74.8(5)	O(17)-U(2)-O(10)	70.7(5)
O(12)-U(1)-O(5)	71.9(5)	O(10)-U(2)-O(6)	71.6(5)
O(1) -U(1)-O(5)	82.6(6)	O(3) -U(2)-O(9)	89.6(7)
O(1) -U(1)-O(14)	91.4(6)	O(3) -U(2)-O(13)	95.7(6)
O(1) -U(1)-O(16)	86.8(6)	O(3) -U(2)-O(17)	88.6(6)
O(1) -U(1)-U(8)	87.7(6)	O(3) -U(2)-O(10)	92.0(7)
O(1) -U(1)-U(12)	89.9(6)	O(3) -U(2)-O(6)	92.8(6)
O(1) -U(1)-O(5)	82.6(6)	O(4) -U(2)-O(9)	91.6(7)
O(2) -U(1)-O(14)	88.0(6)	O(4) -U(2)-O(13)	84.9(6)
O(2) -U(1)-O(16)	89.6(6)	O(4) -U(2)-O(17)	90.6(6)
O(2) -U(1)-O(8)	90.8(6)	O(4) -U(2)-O(10)	86.9(7)
O(2) -U(1)-O(12)	92.9(6)	O(4) -U(2)-O(6)	87.3(6)
O(1) -U(1)-O(2)	176.4(7)	O(3) -U(2)-O(4)	178.8(7)
O(5) -S(1)-O(6)	106.0(8)	O(9) -S(2)-O(10)	106.3(10)
O(5) -S(1)-O(7)	109.8(9)	O(9) -S(2)-O(11)	110.5(10)
O(5) -S(1)-O(8)	105.4(8)	O(9) -S(2)-O(12)	107.4(19)
O(6) -S(1)-O(7)	112.7(9)	O(10)-S(2)-O(11)	113.4(10)
O(6) -S(1)-O(8)	108.0(8)	O(10)-S(2)-O(12)	106.9(8)
O(7) -S(1)-O(8)	114.4(10)	O(11)-S(2)-O(12)	112.1(9)

OBSERVED STRUCTURE FACTORS, STANDARD DEVIATIONS, AND DIFFERENCES (ALL X 2.0)  
ALPHA-2U02S04.7H2O F(0,0,0) = 2892

FOB AND FCA ARE THE OBSERVED AND CALCULATED STRUCTURE FACTORS.  
SG = ESTIMATED STANDARD DEVIATION OF FOB. OEL =  $|FOB| - |FCA|$ .  
\* INDICATES ZERO WEIGHTED DATA.

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL				
K,L=	0,	0	-11	365	18	-2	10	239	8	7	0	640	17	29	-8	241	13	-1	
-16	248	13	-16	-10	138	12	0	11	239	8	-2	1	341	13	-27	-7	410	13	9
-14	75	20	-6*	-9	647	18	7	12	281	9	5	2	494	13	-9	-6	205	8	0
-12	201	9	2	-8	84	10	26	13	262	9	-18	3	565	16	-12	-5	114	10	-8
-10	566	15	-4	-7	608	17	27	K,L=	0,	8	4	346	9	-15	-4	189	7	7	
-8	629	17	-37	-6	369	10	10	-16	193	12	-10	5	373	11	-11	-3	336	10	3
-6	576	15	23	-5	230	7	13	-15	231	10	11	6	290	8	-19	-2	344	11	20
-4	248	7	16	-4	451	12	27	-14	89	21	9*	7	289	8	-21	-1	665	19	47
-2	783	0	-20*	-3	354	9	21	-13	250	11	12	8	425	12	-25	0	385	10	18
2	772	0	-28*	-2	292	8	20	-12	187	9	10	9	264	9	-28	1	598	17	-24
4	212	6	14	-11	126	0	-91*	-11	243	11	1	10	268	12	-4	2	291	10	-8
6	561	14	30	0	305	0	29*	-10	422	13	18	11	220	8	8	3	305	11	-10
8	651	18	-27	11005	0	-200*	-9	185	8	20	12	182	9	3	4	172	7	-7	
10	598	16	13	2	271	7	-22	-8	490	14	21	13	176	13	-5	5	137	8	-1
12	186	8	-2	3	297	8	-16	-7	415	13	28	K,L=	0,	12	6	188	7	-9	
K,L=	0,	2	4	375	10	-18	-6	376	11	19	-15	128	17	3	7	372	10	-7	
-16	104	19	-38	5	194	6	-7	-5	682	18	36	-14	341	11	36	8	231	11	-28
-15	227	9	-3	6	317	8	-11	-4	197	6	8	-13	57	69	21*	9	379	16	-13
-14	267	9	-18	7	568	15	-5	-3	754	20	41	-12	363	14	20	10	283	11	5
-13	293	9	-8	8	82	25	0*	-2	498	13	-1	-11	191	10	9	11	269	10	2
-12	327	9	-11	9	630	18	-22	-1	142	5	-7	-10	205	9	9	12	162	10	18
-11	326	9	-10	10	114	10	-20	0	655	17	40	-9	165	9	14	13	106	16	26
-10	171	7	7	11	356	12	-9	1	124	8	-24	-8	161	8	13	K,L=	0,	16	
-9	127	13	7	12	130	13	-4	2	417	11	-33	-7	318	9	29	-14	124	18	51
-8	262	11	14	13	55	59	-1*	3	705	18	-40	-6	521	16	4	-13	404	12	38
-7	331	9	-12	K,L=	0,	6	4	177	5	-14	-5	92	30	14*	-12	44	60	-2*	
-6	468	12	5	-16	173	22	1	5	585	16	-45	-4	696	20	-6	-11	270	21	11
-5	636	17	26	-15	172	13	2	6	307	11	-28	-3	397	12	31	-18	93	20	56*
-4	616	16	4	-14	236	10	-6	7	342	9	-19	-2	532	14	32	-9	54	72	23*
-3	755	19	1	-13	259	9	-8	8	432	13	-26	-1	272	8	7	-8	33	51	-24*
-2	581	0	24*-12	271	9	11	9	174	7	-1	0	152	7	18	-7	275	9	-3	
-1	606	0	9*-11	249	8	4	10	386	10	-15	1	242	8	-12	-6	157	9	8	
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12	343	12	-10	2	722	18	-76	-8	532	16	35	K,L=	0,	14	7	282	12	-9	
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K,L=	0,	4	4	672	18	-33	-6	309	11	10	-14	118	20	-11	9	0	49	-40*	
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-14	120	13	-14	7	408	12	3	-3	609	16	26	-11	281	10	38	12	43	56	-12*
-13	61	79	-5*	8	351	11	-18	-2	495	13	9	-10	324	10	33	13	354	11	-8
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STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 2

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL				
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-12	194	11	32	-11	218	12	14	-2	183	12	22	-2	158	8	9	0	284	0	48*
-11	170	12	7	-10	135	16	0	-1	136	13	0	0	37	0	9*	1	213	0	-6*
-10	329	10	27	-9	245	10	9	0	219	9	-5	2	149	8	7	2	238	6	-7
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-6	272	9	10	-5	202	10	3	4	131	18	1	10	61	18	10*	6	110	6	-3
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-4	76	24	1*	-3	213	11	20	6	134	22	7	K,L=	1,	1	8	148	7	-1	
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5	119	11	-11	6	191	18	-1	-4	149	13	37	-8	193	10	-7	-14	135	13	-1
6	256	9	-7	7	227	10	-5	-3	150	15	-9	-7	377	11	6	-13	174	9	5
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-12	310	13	31	-8	172	13	-6	7	179	16	-16	3	627	16	19	-3	518	13	9
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STRUCTURE FACTORS CONTINUED FOR  
ALPHA- $\text{CuO}_2\text{S}_0_4 \cdot 7\text{H}_2\text{O}$

PAGE 3

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL
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-3	332	9	15	-9	126	24	2*-15	47	60	-19*	10	164	8	-11	5	224	10	-1	
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2	130	8	2	-4	173	6	10	-10	86	15	12	-16	0	63	-40*	10	386	12	-15
3	309	8	-15	-3	46	21	15*	-9	183	9	13	-15	15	89	-44*	11	212	8	-11
4	74	6	-19	-2	250	7	13	-8	33	45	-12*-14	84	24	7*	12	148	11	-3	
5	294	9	-12	-1	164	8	-4	-7	139	8	15	-13	82	23	29*	13	78	23	-16*
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3	580	15	-52	-3	433	11	29	-9	69	19	11*-14	108	19	4	12	46	75	-5*	
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5	856	23	-40	-1	655	17	-17	-7	179	9	18	-12	175	13	7	K,L*	1,	13	
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7	387	10	-15	1	620	16	-27	-5	137	7	17	-10	410	14	26	-14	76	79	5*
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9	150	8	-2	3	401	11	-13	-3	252	8	19	-8	516	15	30	-12	106	42	-9*
10	136	10	-2	4	188	9	-12	-2	563	15	-3	-7	205	7	20	-11	288	10	25
11	268	10	-11	5	194	6	-8	-1	64	11	-19	-6	215	7	10	-10	217	9	16
12	166	9	1	6	288	9	-7	0	34	37	-25*	-5	242	7	23	-9	44	49	5*
13	395	12	-12	7	442	12	-12	1	85	10	-5	-4	135	11	13	-8	193	9	22
K,L*	1,	6	8	238	8	-19	2	543	15	-17	-3	254	7	0	-7	345	12	11	
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**STRUCTURE FACTORS CONTINUED FOR  
ALPHA- $2\text{UO}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$**

PAGE 4

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
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-2	336	9	7	-5	203	10	1	-7	315	9	4	-7	185	10	-7	-6	222	21	21
-1	351	10	22	-4	259	8	-10	-6	303	9	-1	-6	270	9	-3	-5	177	14	13
0	249	50	-25*	-3	271	9	0	-5	120	10	17	-5	337	13	13	-4	109	17	-14
1	317	11	-23	-2	320	9	16	-4	300	9	2	-4	245	9	5	-3	144	11	9
2	311	9	-9	-1	498	15	24	-3	272	9	4	-3	284	9	1	-2	335	10	38
3	545	15	-9	0	391	11	-2	-2	318	9	14	-2	188	9	15	-1	101	14	11
4	152	7	7	1	438	35	-50	-1	395	11	31	-1	255	10	5	0	413	11	-9
5	465	13	-12	2	290	10	-11	0	170	9	-13	0	186	9	4	1	0	52	-78*
6	167	7	-12	3	247	8	-4	1	298	98	-81*	1	213	9	-36	2	296	13	-21
7	335	9	-15	4	277	8	2	2	308	11	-19	2	171	8	-21	3	125	11	-22
8	171	8	10	5	205	8	-11	3	250	9	-10	3	281	9	-18	4	109	11	-6
9	41	46	2*	6	227	8	-1	4	300	12	-5	4	250	10	9	5	159	9	-2
10	187	10	-1	7	283	11	-8	5	123	10	10	5	311	11	-6	6	205	18	2
11	253	9	-15	8	201	8	-2	6	297	11	-6	6	283	9	1	7	126	21	14
12	101	21	-24*	9	326	14	-9	7	298	9	-10	7	189	9	8	8	354	11	7
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-7	58	26	-35*	-9	150	14	3	-10	0	68	-42*-10	103	20	10*	-7	99	27	6*	
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-1	99	12	1	-3	86	41	4*	-4	136	10	7	-4	0	52	-38*	-1	28	53	-33*
0	0133-145*	-2	31	48	-21*	-3	49	49	-5*	-3	0	54	-67*	0	0197	-70*			
1	0233	-93*	-1	230	21	9	-2	81	18	-10*	-2	70	26	-29*	1	0	84	-57*	
2	81	13	-29	0	0214	-89*	-1	0	93	-15*	-1	0	90	-56*	2	0184	-70*		
3	170	7	3	1	0354-238*	0	0	97	-78*	0	25	56-108*	3	0	67	-93*			
4	122	8	2	2	0	89	-55*	1	0483	-9*	1	0206	-59*	4	0	65	-51*		
5	182	7	-4	3	63	19	-22*	2	72	32	-23*	2	0180-114*	5	96	16	-15		
6	95	11	-5	4	51	29	5*	3	53	28	-17*	3	57	39	-13*	6	83	58	8*
7	84	13	-20	5	0	58	-36*	4	139	9	4	4	53	29	16*	7	76	24	-6*
8	0	48	-58*	6	0	46	-32*	5	69	22	-28*	5	98	12	35	8	23	59	-44*
9	38	47	-1*	7	152	8	10	6	148	10	-4	6	49	77	-22*	9	0	60	-41*
10	76	21	2*	8	48	43	-3*	7	74	58	-12*	7	0	55	-36*	10	19	65	-21*
11	95	15	-2	9	147	10	2	8	85	16	32*	8	126	13	-2	11	74	38	18*
12	45	69	-8*	10	0	71	-24*	9	14	52	4*	9	63	32	11*	12	0	69	-44*
13	111	22	7*	11	71	40	-19*	10	66	28	17*	10	129	23	31	K,L=	1,	23	
K,L=	1,	15	12	0	56	-21*	11	41	57	-23*	11	38	59	0*-11	131	16	36		
-14	124	20	-22	13	0	68	-17*	12	97	20	4*	12	43	79	12*-10	139	18	19	
-13	158	14	13	K,L=	1,	17	13	0	61	-52*	13	0	66	-18*	-9	56	59	32*	
-12	153	19	3	-14	166	15	1	K,L=	1,	19	K,L=	1,	21	-8	110	17	13		
-11	193	10	29	-13	59	62	1*-13	166	26	18	-12	79	35	-25*	-7	194	11	-2	
-10	251	11	11	-12	243	10	32	-12	128	23	1	-11	0	64	-73*	-6	247	9	25
-9	345	10	11	-11	217	20	11	-11	191	12	18	-10	268	11	5	-5	264	10	5
-8	211	10	14	-10	154	11	17	-10	138	34	1*	-9	0	59	-49*	-4	306	12	20

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 5

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL				
-3	230	11	16	6	45	55	18*	2	0192	-32*	4	257	7	25	3	437	11	-15	
-2	225	10	6	7	221	10	3	3	0	72	-69*	6	169	7	-4	4	572	15	8
-1	134	11	33	8	95	19	41*	4	67	32	30*	8	516	16	-12	5	441	11	5
0	0	52	-39*	9	264	11	-16	5	29	59	-26*	10	514	15	-8	6	320	10	-6
1	66	25	-31*	10	0	65	-15*	6	85	58	48*	12	168	9	-5	7	305	8	3
2	206	9	-17	K,L=	1,	26		7	0	60	-52*	K,L=	2,	1	8	165	7	5	
3	223	15	-5	-9	0	66	-78*	8	46	61	2*-16	84	23	-24*	9	70	14	0*	
4	286	9	-12	-8	0	72	-38*	K,L=	1,	29	-15	116	15	-4	10	163	11	-2	
5	232	21	-16	-7	62	53	14*	-7	96	30	16*-14	0	53	-65*	11	264	11	-17	
6	211	9	-7	-6	60	66	-4*	-6	69	63	-39*-13	161	9	-8	12	246	9	-7	
7	180	11	-4	-5	0	66	-28*	-5	81	34	3*-12	109	11	7	13	228	9	-3	
8	113	17	12	-4	78	30	15*	-4	40	62	10*-11	201	8	-7	K,L=	2,	3		
9	0	81	-10*	-3	31	59	-6*	-3	127	37	25*-10	259	8	-8	-16	131	14	1	
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11	94	27	-2*	-1	0	149	-76*	-1	54	60	-12*	-8	304	10	-7	-14	198	9	-3
	K,L=	1,	24	0	0	57	-59*	0	291	13	-3	-7	218	7	-12	-13	67	24	-25*
-11	81	31	41*	1	0	190	-78*	1	56	65	-11*	-6	153	6	-1	-12	202	8	-1
-10	0	83	-50*	2	0	188	-47*	2	167	12	-10	-5	325	9	17	-11	135	18	-4
-9	114	30	36*	3	0	122	-39*	3	85	23	-16*	-4	256	7	24	-10	158	8	2
-8	71	30	10*	4	0	94	-65*	4	75	24	42*	-3	314	8	8	-9	172	9	-3
-7	55	59	-18*	5	44	60	10*	5	0	60	-58*	-2	373	10	21	-8	158	7	-1
-6	69	32	-1*	6	0	62	-59*	6	125	15	19	-1	354	9	-4	-7	156	10	9
-5	0	60	-13*	7	46	58	4*	7	76	32	-7*	0	667	17	26	-6	373	11	12
-4	54	68	-15*	8	0	97	-40*	K,L=	1,	38	1	364	10	-19	-5	149	6	3	
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-2	87	22	27*	K,L=	1,	27	-4	83	26	56*	3	344	9	12	-3	180	5	3	
-1	38	56	-26*	-9	0	66	-38*	-3	0	75	-23*	4	262	7	27	-2	393	10	12
0	0	55	-13*	-8	109	28	15*	-2	0	62	-53*	5	302	8	16	-1	257	8	6
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2	0	101	-64*	-6	191	12	8	0	0	81	-80*	7	227	8	3	1	235	7	-17
3	45	69	-15*	-5	232	11	43	1	0	60	-37*	8	320	10	10	2	381	10	-17
4	67	24	3*	-4	196	12	24	2	0	110	-47*	9	145	8	-1	3	171	5	-7
5	0	54	-23*	-3	220	10	15	3	0	85	-22*	10	272	9	2	4	432	12	-4
6	67	42	7*	-2	141	13	0	4	0	61	-23*	11	208	8	-4	5	141	5	-1
7	0	78	-70*	-1	59	89	-54*	5	0	75	-34*	12	122	26	21*	6	348	10	-1
8	0	86	-59*	0	83	28	23*	K,L=	1,	31	13	152	10	-8	7	162	6	4	
9	31	62	-44*	1	97	18	-18*	-4	137	17	-11	K,L=	2,	2	8	157	7	3	
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11	42	65	-1*	3	172	11	-20	-2	135	16	21	-15	151	12	-17	10	146	9	-9
	K,L=	1,	25	4	186	15	-2	-1	119	16	12	-14	193	11	-13	11	143	9	8
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-9	272	11	-2	6	162	11	-3	1	126	15	16	-12	245	9	0	13	63	28	-17*
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-6	29	60	-4*	9	0	65	-47*	4	139	14	2	-9	76	18	-1*	-15	154	11	-4
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-2	0	56	-42*	-6	84	99	50*-12	171	8	-3	-5	474	12	16	-11	296	9	-8	
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1	341	10	-18	-3	68	37	-4*	-6	198	6	3	-2	587	15	19	-8	71	14	7*
2	0	68	-37*	-2	21	59	-12*	-4	257	7	20	-1	284	8	21	-7	419	12	13
3	163	10	12	-1	80	23	40*	-2	419	11	-3	0	154	13	18	-6	242	8	5
4	0	53	-21*	0	15	90	-8*	0	1186	30	-10	1	270	8	-9	-5	13	46	-9*
5	0	55	-64*	1	34	56	-11*	2	431	11	8	2	552	14	-7	-4	246	7	22

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 6

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
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-2	127	9	7	-8	328	11	14	-14	71	28	11*	12	98	15	-19
-1	629	16	-4	-7	344	9	25	-13	186	15	-9	13	0	55	-6*
0	347	9	8	-6	348	10	6	-12	117	25	-11*	K,L=	2,	10	10
1	612	16	-28	-5	436	12	11	-11	169	12	-4	-15	112	19	-11
2	113	8	-4	-4	371	10	11	-10	283	9	14	-14	112	26	-13*
3	311	9	-11	-3	468	12	19	-9	88	13	18	-13	144	13	20
4	225	7	3	-2	337	9	2	-8	378	10	19	-12	160	11	2
5	45	14	0*	-1	283	11	-6	-7	317	9	17	-11	141	12	8
6	231	7	0	0	250	8	4	-6	331	9	15	-10	229	9	13
7	414	11	2	1	299	8	-4	-5	441	12	17	-9	204	8	15
8	56	26	-16*	2	288	8	-25	-4	65	12	-3*	-8	390	11	15
9	512	16	-15	3	425	11	-14	-3	414	11	21	-7	268	8	26
10	80	13	1	4	352	9	-23	-2	360	10	-3	-6	264	10	3
11	282	9	-12	5	424	13	-22	-1	151	6	-1	-5	291	9	13
12	106	12	-13	6	323	9	-16	0	564	15	21	-4	263	8	-7
13	0	60	-50*	7	306	9	3	1	94	12	-15	-3	323	9	5
	K,L=	2,	5	8	299	8	0	2	371	10	-15	-2	310	8	-10
-16	8	60	-70*	9	254	10	-9	3	421	12	-6	-1	336	9	5
-15	42	57	-55*	10	139	11	-17	4	81	12	3	0	467	12	19
-14	73	25	-2*	11	199	13	-3	5	510	11	-20	1	309	8	-9
-13	42	51	-5*	12	232	10	0	6	307	10	-10	2	347	10	-8
-12	122	11	1	13	174	16	-21	7	284	8	-7	3	300	10	-4
-11	20	0	8	-6	K,L=	2,	7	8	363	10	-13	4	232	7	-31
-10	119	9	9	-16	69	85	-1*	9	92	11	20	5	262	10	-20
-9	421	11	14	-15	174	24	-6	10	258	8	-4	6	257	8	-20
-8	188	8	7	-14	61	40	-39*	11	172	9	-12	7	249	8	-4
-7	371	10	21	-13	207	13	2	12	110	14	-13	8	334	10	-21
-6	204	6	18	-12	108	14	4	13	190	9	-6	9	187	7	9
-5	60	17	9*	-11	197	8	14	K,L=	2,	9	10	214	8	-7	
-4	202	6	7	-10	111	16	19	-15	43	60	-12*	11	120	12	-18
-3	270	7	27	-9	86	13	18	-14	75	27	34*	12	131	12	-21
-2	155	6	-6	-8	161	8	34	-13	0	68	-11*	13	128	13	1
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0	43	24	-11*	-6	254	8	19	-11	49	60	-8*	-15	125	16	18
1	483	12	-16	-5	516	14	24	-10	275	9	8	-14	176	13	-2
2	144	5	-11	-4	195	6	18	-9	81	22	10*	-13	89	23	-9*
3	223	7	-7	-3	460	12	13	-8	448	13	33	-12	199	11	6
4	182	6	-7	-2	121	6	10	-7	145	8	3	-11	95	21	-15*
5	88	7	9	-1	150	6	-7	-6	257	8	15	-10	110	13	13
6	190	6	-1	0	34	37	-19*	-5	70	15	21*	-9	134	10	-2
7	339	10	-3	1	145	6	-2	-4	89	9	8	-8	42	46	-7*
8	164	7	3	2	100	10	-3	-3	176	6	9	-7	200	8	1
9	401	11	-7	3	434	12	-25	-2	408	11	-2	-6	309	9	1
10	128	8	9	4	181	6	-1	-1	118	8	4	-5	217	7	-1
11	212	8	5	5	465	14	-28	0	491	13	2	-4	422	12	5
12	139	9	13	6	212	7	-7	1	117	7	4	-3	239	7	11
13	0	53	-42*	7	231	7	-6	2	402	11	-14	-2	177	7	-5
	K,L=	2,	6	8	142	16	3	3	168	6	2	-1	128	8	7
-16	114	18	-4	9	68	15	-2*	4	69	13	-1*	0	0124	-50*	-4
-15	137	14	0	10	86	31	-3*	5	46	18	9*	1	101	9	-8
-14	177	10	-13	11	177	8	-4	6	249	8	-3	2	199	7	11
-13	179	13	-13	12	127	10	18	7	129	8	-20	3	239	9	-2
-12	214	9	-11	13	197	11	-10	8	390	11	-7	4	384	11	-23
-11	197	8	-1	K,L=	2,	8	9	38	43	-21*	5	196	7	-7	
-10	150	8	17	-16	156	20	17	10	261	8	-1	6	295	8	-20

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 7

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL					
3	242	9	-5	1	124	18	-21	-1	115	13	-14	1	0226	-218*	5	92	15	18		
4	114	9	-19	2	145	16	-21	0	177	13	-34	2	112	41	-38*	6	212	9	9	
5	70	15	-11*	3	224	9	0	1	0153	-139*	3	144	12	-27	7	77	58	5*		
6	148	10	-8	4	212	8	4	2	222	9	-14	4	159	14	11	8	89	26	15*	
7	289	8	-7	5	252	12	2	3	210	8	-6	5	159	13	-17	9	96	19	12*	
8	110	18	-10	6	196	9	7	4	91	28	-5*	6	105	15	17	10	65	70	3*	
9	233	9	-3	7	97	12	-12	5	219	8	3	7	145	11	1	11	81	56	27*	
10	76	17	15*	8	150	28	9*	6	148	15	2	8	122	13	-6	12	156	22	2	
11	182	9	-3	9	90	14	6	7	152	11	3	9	153	11	-3	K,L=	2,	22		
12	115	15	14	10	144	11	-13	8	167	10	-17	10	166	17	35	-11	179	16	13	
13	71	27	-2*	11	94	17	-17*	9	0	53	-25*	11	120	30	-1*-10	152	13	25		
	K,L=	2,	14	12	115	16	-1	10	137	12	4	12	71	36	-27*	-9	204	11	9	
-14	92	26	15*	13	148	18	-12	11	93	20	-24*	K,L=	2,	20	-8	112	17	-9		
-13	93	25	0*	K,L=	2,	16	12	111	21	13*-12	240	11	23	-7	138	15	-15			
-12	89	23	4*-14	0	66	-52*	13	149	14	-5	-11	79	26	27*	-6	134	13	15		
-11	207	12	11	-13	296	11	25	K,L=	2,	18	-10	127	14	20	-5	110	15	-10		
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-9	304	10	9	-11	205	11	7	-12	150	14	18	-8	133	12	18	-3	158	11	12	
-8	180	8	11	-10	25	85	-18*	-11	136	14	4	-7	96	16	9	-2	127	14	-4	
-7	281	10	-3	-9	52	55	16*-10	252	10	5	-6	264	9	4	-1	223	9	-2		
-6	183	8	-6	-8	0	51	-44*	-9	183	10	8	-5	85	22	-15*	0	130	11	8	
-5	71	17	-19*	-7	207	13	-3	-8	274	14	0	-4	360	10	-7	1	0146	-202*		
-4	108	14	-4	-6	90	15	-11	-7	128	11	-1	-3	138	19	19	2	0112	-127*		
-3	196	10	-6	-5	414	11	-3	-6	156	17	16	-2	258	16	6	3	140	13	-1	
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0	367	12	4	-2	92	25	23*	-3	126	11	22	1	0162	-116*	6	139	12	7		
1	433	11	-21	-1	156	10	-9	-2	294	9	6	2	214	21	-24	7	175	11	17	
2	243	10	-6	0	0	97	-72*	-1	233	9	2	3	117	11	-5	8	123	17	-2	
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5	92	12	-15	3	411	12	-16	3	93	13	-12	6	275	9	6	11	146	16	-10	
6	192	7	-3	4	152	9	3	4	92	14	-8	7	97	25	2*	K,L=	2,	23		
7	279	8	-20	5	424	12	9	5	107	21	15*	8	128	18	19	-11	79	35	-32*	
8	171	8	-18	6	94	22	-14*	6	166	9	16	9	103	25	30*	-10	97	27	-19*	
9	286	10	-9	7	215	8	1	7	148	10	14	10	116	16	-2	-9	126	24	3*	
10	167	20	-9	8	0	49	-29*	8	277	9	-11	11	84	24	36*	-8	151	16	14	
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STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H2O

PAGE 8

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STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 9

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STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 10

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8	94	13	33	10	119	14	6	-11	25	63	2*	-2	118	15	24	-8	112	19	28
9	365	11	-3	11	130	14	9	-10	144	14	8	-1	0	61	-71*	-7	125	18	20
10	128	11	28	12	179	12	-6	-9	0	59	-13*	0	0	55	-9*	-6	145	27	1*
11	223	10	-2	K,L=	3,	19	-8	172	12	-10	1	0	131	-61*	-5	96	25	28*	
12	84	22	24*-12	89	25	14*	-7	59	41	16*	2	0	60	-96*	-4	140	33	-7*	
K,L=	3,	17	-11	101	21	6*	-6	112	15	-7	3	91	19	-33*	-3	76	33	-7*	
-13	63	53	23*-18	131	20	48	-5	0	64	-76*	4	137	12	-15	-2	116	17	10	
-12	111	19	6	-9	72	28	14*	-4	64	31	-16*	5	113	15	-20	-1	179	12	-18
-11	113	17	7	-8	135	12	7	-3	105	15	6	6	126	14	9	0	128	15	-8
-10	72	28	15*	-7	95	17	-5	-2	162	11	15	7	75	29	-12*	1	148	36	-53*
-9	145	12	-6	-6	141	11	-14	-1	0	55	-34*	8	0	67	-44*	2	92	49	-20*
-8	92	24	33*	-5	163	18	-13	0	163	100	-55*	9	0	64	-29*	3	0	59	-77*

**STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H2O**

PAGE 11

**STRUCTURE FACTORS CONTINUED FOR  
ALPHA- $ZnO_2S_04 \cdot 7H_2O$**

PAGE12

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	
-9	0	51	-39*	-9	34	51	-5*	-9	67	26	18*	-8	47	51	19*	-6	57	29	14*	
-8	116	11	11	-8	105	15	7	-8	71	21	21*	-7	52	46	-30*	-5	110	12	4	
-7	0	47	-60*	-7	26	49	5*	-7	78	22	18*	-6	0	50	-16*	-4	0	51	-18*	
-6	80	15	5	-6	96	13	-7	-6	57	31	-34*	-5	55	86	-6*	-3	122	10	26	
-5	103	11	3	-5	64	21	0*	-5	50	65	-12*	-4	48	43	32*	-2	46	51	-9*	
-4	121	9	14	-4	143	8	13	-4	124	10	2	-3	105	24	-25*	-1	82	19	-1*	
-3	127	9	19	-3	65	18	29*	-3	65	21	10*	-2	65	78	12*	0	3	52	-19*	
-2	77	16	-13*	-2	103	11	-12	-2	88	24	-20*	-1	100	32	-19*	1	27	67	-62*	
-1	33	44	-26*	-1	25	46	18*	-1	63	23	10*	0	0	87	-52*	2	83	14	19	
0	100	12	6	0	150	9	7	0	87	16	22	1	113	11	-8	3	92	22	2*	
1	82	26	18*	1	48	30	44*	1	9	48	-52*	2	48	40	2*	4	0	52	-16*	
2	94	10	5	2	93	12	-16	2	96	17	-23	3	72	22	-48*	5	113	15	11	
3	123	8	11	3	46	35	18*	3	77	15	12*	4	34	59	24*	6	0	51	-42*	
4	94	10	-16	4	124	8	-9	4	113	14	5	5	70	18	4*	7	93	15	15	
5	77	13	-13	5	64	20	9*	5	48	30	-13*	6	0	48	-13*	8	30	51	-15*	
6	81	15	0	6	112	10	6	6	107	10	15	7	75	22	-5*	9	52	52	12*	
7	69	14	16*	7	53	25	36*	7	69	17	7*	8	64	57	41*	10	0	84	-6*	
8	110	10	11	8	92	13	2	8	0	57	-52*	9	49	56	-19*	11	100	25	32*	
9	57	23	20*	9	0	48	-38*	9	36	49	-12*	10	0	58	-50*	12	83	26	64*	
10	95	14	7	10	80	32	6*	10	44	50	16*	11	15	57	-48*	K,L=	4,	17		
11	0	64	-28*	11	45	51	11*	11	0	57	-38*	12	0	57	-21*	-12	128	42	6*	
12	78	20	22*	12	104	15	33	12	38	57	-37*	K,L=	4,	15	-11	150	22	-1		
K,L=	4,	9	K,L=	4,	11	K,L=	4,	13	-13	219	20	-8	-10	208	11	-5				
-14	91	30	48*-14	259	11	3	-14	161	15	36	-12	160	14	13	-9	0	58	-55*		
-13	21	58	14*-13	146	49	8*-13	100	20	24*-11	190	11	17	-8	231	10	-10				
-12	170	12	2	-12	280	11	5	-12	115	19	-2	-10	223	17	10	-7	160	12	-7	
-11	50	56	-27*-11	140	13	12	-11	257	10	-2	-9	170	10	13	-6	169	10	-5		
-10	38	8	12	15	-10	153	11	13	-10	98	18	3	-8	198	19	8	-5	295	9	-6
-9	98	15	4	-9	140	11	-3	-9	360	10	13	-7	182	10	3	-4	132	11	0	
-8	54	8	15	17	-8	138	10	19	-8	114	13	2	-6	237	9	-5	-3	314	14	-7
-7	19	6	12	4	-7	237	12	22	-7	370	10	4	-5	335	10	-2	-2	289	10	-11
-6	29	2	9	-4	-6	415	11	5	-6	198	11	-1	-4	240	8	6	-1	173	10	4
-5	92	23	17*	-5	285	9	4	-5	96	13	14	-3	321	9	-16	0	278	9	-6	
-4	14	0	9	11	-4	551	15	-15	-4	187	16	2	-2	238	8	0	1	145	12	-19
-3	19	0	8	3	-3	312	9	-4	-3	309	9	-11	-1	202	9	10	2	296	9	-10
-2	46	1	12	-19	-2	276	8	-3	-2	237	10	0	0	345	10	2	3	298	13	-6
-1	14	2	15	-8	-1	198	8	1	-1	485	13	-2	1	209	8	7	4	128	12	-1
0	59	2	16	-14	0	32	52	-23*	0	70	22	-3*	2	208	9	-5	5	286	9	-2
1	15	2	8	-3	1	193	11	-3	1	477	14	-25	3	327	12	-1	6	196	9	8
2	46	8	14	-25	2	293	9	8	2	244	8	4	4	256	12	4	7	188	9	4
3	19	3	7	-2	3	322	12	-14	3	318	9	-1	5	348	10	-8	8	245	12	-7
4	10	7	9	-15	4	540	16	-32	4	187	8	-14	6	228	8	-10	9	66	28	7*
5	72	17	5*	5	259	8	-12	5	95	14	13	7	157	10	-17	10	284	10	6	
6	27	3	8	-21	6	408	11	-20	6	184	8	-4	8	196	9	-3	11	179	10	24
7	20	7	7	2	7	183	10	-7	7	358	10	-16	9	158	10	-3	12	126	22	4
8	49	2	14	-20	8	98	25	12*	8	119	11	-15	10	206	9	0	K,L=	4,	18	
9	7	4	27	-2*	9	133	10	-10	9	333	10	-4	11	150	13	-18	-12	43	64	12*
10	36	8	10	-11	10	138	10	-1	10	77	21	-14*	12	135	30	-5*	-11	56	60	16*
11	45	53	-26*	11	138	12	4	11	274	12	10	K,L=	4,	16	-10	40	60	-11*		
12	17	0	10	-4	12	265	13	-3	12	140	13	12	-13	71	80	5*	-9	48	57	18*
K,L=	4,	10	K,L=	4,	12	K,L=	4,	14	-12	0	63	-23*	-8	68	29	-7*				
-14	57	61	14*-14	70	56	17*-13	57	63	19*-11	54	60	-13*	-7	0	56	-46*				
-13	54	58	44*-13	0	62	-28*-12	0	61	-20*-10	0	89	-9*	-6	47	53	-8*				
-12	70	31	7*-12	84	26	12*-11	46	58	-10*	-9	0	57	-35*	-5	43	61	-22*			
-11	0	57	-34*-11	42	58	3*-10	0	57	-47*	-8	0	56	-43*	-4	81	18	33*			
-10	81	22	-4*-10	0	56	-37*	-9	97	17	10	-7	97	20	24*	-3	0	76	-39*		

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 13

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
-2	65	69	-21*	5	57	36	53*	-7	142	22	25	-7	53	64	18*
-1	78	23	-7*	6	85	92	9*	-6	166	26	8	-6	23	97	10*
0	66	45	-26*	7	44	57	32*	-5	87	97	34*	-5	60	86	5*
1	78	19	-9*	8	61	71	7*	-4	120	15	29	-4	0	66	-4*
2	57	30	-26*	9	60	45	45*	-3	135	14	26	-3	55100	-3*	K,L= 5,
3	0	51	-32*	10	23	61	-30*	-2	254	10	22	-2	0	62	-19*-14
4	53	43	10*	11	19	62	7*	-1	222	10	-3	-1	66	36	7*-13
5	59	32	5*	K,L= 4,	21	0	229	14	0	0	0	0	84	-32*-12	0
6	57	48	3*-11	94	25	6*	1	195	10	-12	1	0	120	-55*-11	40
7	0	65	-48*-10	94	23	20*	2	205	10	-21	2	0	59	-20*-10	76
8	79	27	10*	-9	117	18	4	3	109	15	-2	3	0	80	-58*-9
9	84	26	45*	-8	90	53	-24*	4	90	19	-1*	4	0	57	-6*-8
10	0	59	-50*	-7	72	35	-21*	5	46	57	11*	5	0	63	-51*-7
11	69	32	32*	-6	257	13	-13	6	152	13	-12	6	0	61	-12*-6
12	0	62	-32*	-5	91	21	11*	7	145	15	14	7	0	63	-29*-5
	K,L= 4,	19	-4	357	11	-10	8	215	17	9	K,L= 4,	27	-4	68	14
-11	133	18	-44	-3	67	33	-14*	9	165	15	-5	-6	75	37	-13*-3
-10	179	12	0	-2	225	10	1	K,L= 4,	24	-5	56	65	-12*	-2	0
-9	235	10	9	-1	135	14	-2	-9	66	45	27*	-4	88	29	12*-1
-8	176	11	-11	0	34	54	-25*	-8	0	90	-22*	-3	92	28	-12*
-7	203	14	-1	1	133	26	5*	-7	29	61	-3*	-2	162	13	9
-6	156	11	4	2	205	9	-2	-6	26	60	0*	-1	179	12	-10
-5	179	10	-12	3	105	13	21	-5	86	87	28*	0	179	16	2
-4	182	10	-4	4	343	11	-13	-4	108	22	101*	1	191	11	-6
-3	217	10	7	5	66	88	-17*	-3	38	66	-29*	2	130	15	-13
-2	202	10	-13	6	300	11	9	-2	0	70	-25*	3	58	64	-47*
-1	301	10	3	7	76	31	-24*	-1	0	114	-70*	4	0	61	-82*
0	256	9	-12	8	120	17	9	0	0	118	-46*	5	40	61	-33*
1	255	9	-14	9	146	15	31	1	0	121	-61*	6	78	43	-10*
2	195	9	-9	10	105	20	12*	2	0	154	-34*	K,L= 4,	28	10	64
3	191	9	-14	11	55	92	-22*	3	42	56	-21*	-4	34	67	-7*
4	163	17	-21	K,L= 4,	22	4	0	56	-10*	-3	32	74	12*	12	
5	184	13	-13	-10	0	64	-35*	5	98	18	37	-2	0	69	-46*
6	160	11	6	-9	73	32	36*	6	44	57	16*	-1	0	64	-40*-14
7	224	10	10	-8	0	62	-35*	7	0	62	-27*	0	38	61	-7*-13
8	188	11	-11	-7	58	59	10*	8	40	63	11*	1	0	62	-41*-12
9	222	11	-7	-6	105	22	34*	9	35	68	-7*	2	0	63	-40*-11
10	174	12	-8	-5	57	62	36*	K,L= 4,	25	3	0	61	-25*-10	269	
11	170	12	8	-4	0	60	-51*	-8	29	66	-14*	4	0	62	-43*
	K,L= 4,	20	-3	47	57	12*	-7	178	13	24	K,L= 4,	29	-8	323	
-11	0	82	-13*	-2	0	99	-49*	-6	89	23	58*	-2	161	17	27
-10	21	62	-29*	-1	0	59	-60*	-5	302	11	3	-1	75	32	4*
-9	13	59	-2*	0	0	60	-99*	-4	34	61	14*	0	0	60	-26*
-8	0	59	-55*	1	0	55	-63*	-3	279	15	5	1	62	47	-3*
-7	74	45	56*	2	74	22	21*	-2	0	72	-15*	2	136	15	-1
-6	87	69	17*	3	0	53	-30*	-1	110	17	23	K,L= 5,	0	-2	415
-5	0	55	-5*	4	0	56	-45*	0	0	58	-34*-14	321	10	-25	-1
-4	68	30	-12*	5	0	59	-13*	1	75	28	-25*-12	348	10	-29	0
-3	0	55	-14*	6	7	59	-54*	2	33101	11*	-10	160	12	-3	1
-2	74	26	-8*	7	54	71	6*	3	250	10	-13	-8	137	12	-9
-1	0	121	-24*	8	0	64	-44*	4	0	58	-27*	-6	566	15	-8
0	0	56	-49*	9	83	27	42*	5	297	10	-11	-4	649	18	-5
1	0	79	-19*	10	0	90	-36*	6	74	74	45*	-2	309	9	-9
2	77	19	-1*	K,L= 4,	23	7	180	12	20	0	30	45	11*	6	
3	0	51	-16*	-9	142	16	-21	8	0	65	-41*	2	324	9	5
4	52	55	-26*	-8	206	11	3	K,L= 4,	26	4	676	19	17	8	333

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 14

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
9	323	11	2	9	0	50	-53*	9	308	10	-2	9	307	9	-9
10	271	9	-2	10	177	9	2	10	254	9	6	10	161	10	-7
11	233	9	-8	11	241	9	-11	11	174	16	-11	11	221	9	-12
12	129	13	0	12	110	52	10*	12	197	19	14	12	231	10	5
	K,L=	5,	3		K,L=	5,	5		K,L=	5,	7		K,L=	5,	9
-14	84	21	31*-14	0	58	-34*-14	80	25	50*-14	71	35	34*-12	54	61	15*
-13	41	55	31*-13	0	59	-39*-13	69	30	13*-13	55	59	50*-11	36	60	-4*
-12	75	38	5*-12	12	73	-28*-12	66	29	32*-12	44	59	-1*-10	83	22	43*
-11	0	53	-14*-11	89	20	27*-11	39	54	1*-11	0	62	-15*-9	65	29	10*
-10	66	22	23*-10	14	77	-17*-10	31	55	10*-10	40	57	-20*-8	51	57	5*
-9	56	30	7*-9	84	15	20	-9	43	60	-14*	-9	0	59	-23*	-7
-8	50	37	-6*-8	102	14	22	-8	3	50	-39*	-8	94	16	5	-6
-7	13	65	-26*-7	37	47	-23*	-7	84	16	-6*	-7	0	51	-34*	-5
-6	80	24	-1*-6	0	46	-45*	-6	46	47	8*	-6	59	26	-1*	-4
-5	56	27	40*-5	114	10	53	-5	73	23	-10*	-5	25	48	11*	-3
-4	100	11	-21	-4	76	14	13	-4	26	46	-6*	-4	83	16	7*
-3	45	29	-11*-3	92	23	11*	-3	95	16	1	-3	0	48	-13*	-1
-2	100	10	7	-2	93	14	18	-2	82	14	31	-2	89	32	-9*
-1	29	44	0*-1	87	13	4	-1	90	13	1	-1	61	65	23*	1
0	86	14	-3	0	69	18	31*	0	0	49	-18*	0	77	54	-3*
1	42	24	19*	1	74	14	6*	1	51	52	-18*	1	76	17	33*
2	101	8	15	2	87	18	15	2	0	56	-39*	2	74	17	-14*
3	63	14	3*	3	61	15	-16*	3	88	13	-9	3	23	43	15*
4	125	7	3	4	75	12	8	4	0	65	-27*	4	90	11	12
5	46	29	28*	5	101	23	44*	5	93	14	3	5	0	43	-9*
6	93	11	9	6	26	43	-3*	6	47	29	1*	6	25	46	-43*
7	58	21	19*	7	77	19	11*	7	62	27	-17*	7	39	52	6*
8	76	15	16*	8	79	16	5*	8	60	23	22*	8	83	15	0*
9	65	28	13*	9	0	50	-61*	9	46	56	-11*	9	37	49	14*
10	42	50	4*	10	51	38	14*	10	0	52	-14*	10	69	23	12*
11	11	52	-1*	11	55	59	1*	11	78	20	37*	11	0	56	-19*
12	75	88	9*	12	48	55	10*	12	5	64	-28*	12	47	56	K,L=
	K,L=	5,	4		K,L=	5,	6		K,L=	5,	8		K,L=	5,	10
-14	87	57	32*-14	109	17	-8	-14	189	12	-17	-13	156	13	8	-11
-13	314	10	-18	-13	177	11	2	-13	0	59	-13*-12	234	11	-4	-18
-12	96	18	-9*-12	181	13	5	-12	235	10	16	-11	198	13	13	-9
-11	257	12	-9	-11	181	10	-13	-11	246	14	-4	-10	185	11	9
-10	170	9	-8	-10	258	9	-3	-10	166	13	12	-9	215	10	1
-9	76	21	24*	-9	307	9	-1	-9	325	10	19	-8	222	14	-12
-8	149	9	-4	-8	331	10	4	-8	123	11	9	-7	220	9	-9
-7	348	10	7	-7	275	15	-1	-7	253	8	20	-6	278	9	13
-6	166	8	8	-6	272	18	-2	-6	370	12	12	-5	269	9	9
-5	653	17	18	-5	295	9	3	-5	172	14	17	-4	386	11	1
-4	76	15	5*	-4	288	9	0	-4	438	12	-4	-3	304	9	0
-3	498	13	-9	-3	271	8	26	-3	227	10	-2	-2	305	9	-13
-2	237	8	-1	-2	384	10	-4	-2	350	11	-1	-1	257	9	5
-1	187	7	-10	-1	384	11	-3	-1	387	11	-4	0	289	9	3
0	263	8	8	0	263	9	-3	0	50	43	38*	1	261	9	2
1	159	8	-31	1	387	12	-9	1	387	12	9	2	296	9	-7
2	201	7	-11	2	359	10	-22	2	335	9	-11	3	306	10	-5
3	493	13	-27	3	223	7	-3	3	230	7	-9	4	369	11	-14
4	84	11	1	4	253	8	-10	4	427	11	-20	5	248	11	-14
5	644	18	-1	5	278	8	-9	5	129	9	-12	6	287	8	-10
6	141	8	-14	6	279	14	-10	6	346	11	-17	7	214	8	-14
7	324	9	-5	7	266	9	-14	7	261	8	3	8	223	8	-11
8	184	8	-2	8	319	9	1	8	119	10	8	9	205	9	-16

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 15

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL
12	132	14	0	-11	24	62	5*	-6	46	54	15*	3	99	15	28
K,L=	5,	13	-10	62	42	5*	-5	80	35	19*	4	55	78	31*	
-13	66	79	39*	-9	0	66	-19*	-4	0	55	-38*	5	0	61	-46*
-12	90	23	65*	-8	61	51	21*	-3	65	27	34*	6	31	57	18*
-11	46	60	-14*	-7	92	55	48*	-2	95	16	29	7	52	58	9*
-10	44	65	22*	-6	0	74	-66*	-1	38	70	15*	8	0	62	-16*
-9	59	37	-9*	-5	0	57	-17*	0	40	55	-12*	9	73	30	15*
-8	15	55	-12*	-4	0	52	-66*	1	57	87	26*	10	0	62	-21*
-7	91	16	27	-3	0	52	-16*	2	67	38	-8*	K,L=	5,	20	4
-6	0	60	-20*	-2	0	53	-42*	3	0	53	-26*	-10	226	12	7
-5	64	37	4*	-1	55	62	8*	4	55	65	19*	-9	102	20	26*
-4	11	50	-34*	0	72	27	-30*	5	74	22	24*	-8	320	11	-1
-3	76	18	24*	1	0	72	-43*	6	81	27	59*	-7	53	41	-4*
-2	49	50	34*	2	87	15	32	7	22	54	-12*	-6	157	16	-20
-1	82	19	-20*	3	67	29	44*	8	34	57	-21*	-5	54	59	-50*
0	30	53	11*	4	0	53	-57*	9	57	89	38*	-4	96	19	2*
1	92	15	-20	5	23	50	-4*	10	35	67	-15*	-3	109	17	-11
2	24	51	5*	6	91	15	26	11	84	52	47*	-2	249	10	1
3	18	59	-28*	7	68	41	25*	K,L=	5,	18	-1	149	12	34	-5
4	83	19	42*	8	9	53	-35*-11	125	18	6	0	368	11	19	-4
5	54	31	4*	9	46	55	26*-18	118	18	18	1	118	18	-3	-3
6	0	48	-17*	10	55	57	1*	-9	55	59	15*	2	258	11	-10
7	62	25	-9*	11	0	72	-23*	-8	97	21	-17*	3	117	14	-7
8	45	53	23*	12	65	40	20*	-7	148	12	2	4	90	20	2*
9	0	54	-62*	K,L=	5,	16	-6	298	10	-10	5	94	22	-11*	
10	0	58	-20*-12	85	97	20*	-5	189	18	-16	6	197	11	15	
11	42	57	-19*-11	210	15	6	-4	281	18	-25	7	75	31	3*	
12	67	33	43*-10	114	16	27	-3	199	10	-6	8	295	12	-9	
K,L=	5,	14	-9	374	11	10	-2	211	10	-9	9	45	63	-38*	
-12	141	18	15	-8	67	72	7*	-1	104	18	10	10	231	12	4
-11	166	13	-5	-7	322	10	0	0	98	17	13	K,L=	5,	21	7
-10	169	14	29	-6	0	57	-48*	1	96	15	22	-9	0	63	-29*
-9	80	54	-4*	-5	55	42	-17*	2	227	9	4	-8	0	64	-47*
-8	84	21	-8*	-4	0	53	-6*	3	214	11	-11	-7	0	60	-9*
-7	216	12	9	-3	205	9	-2	4	327	10	13	-6	27	75	-21*
-6	216	9	10	-2	131	12	-1	5	192	11	-8	-5	0	67	-30*
-5	332	18	-11	-1	471	13	10	6	307	10	0	-4	0	59	-44*
-4	243	9	-15	0	148	14	22	7	125	24	-9*	-3	79	24	50*
-3	368	15	-24	1	460	12	-16	8	103	18	-10	-2	0	85	-51*
-2	221	9	-10	2	124	12	-5	9	48	57	19*	-1	0	66	-29*
-1	207	9	4	3	198	9	0	10	101	20	0*	0	41	61	-1*
0	181	10	2	4	0	54	-23*	11	112	19	-12	1	75	23	38*
1	182	9	-16	5	116	15	25	K,L=	5,	19	2	62	32	12*	2
2	227	12	-15	6	70	24	21*-10	0	63	-23*	3	0	59	-33*	3
3	375	13	-11	7	299	10	-10	-9	70	34	17*	4	43	57	-6*
4	256	9	-12	8	64	31	-14*	-8	0	60	-14*	5	85	22	56*
5	344	12	-15	9	356	11	-7	-7	0	58	-48*	6	0	61	-45*
6	184	9	-4	10	82	24	4*	-6	0	72	-12*	7	0	63	-12*
7	214	10	-5	11	219	10	2	-5	111	14	63	8	24	63	-20*
8	121	12	17	12	86	25	32*	-4	0	85	-24*	9	94	38	64*
9	85	26	0*	K,L=	5,	17	-3	65	70	2*	K,L=	5,	22	-5	66
10	127	14	-12	-11	107	32	69*	-2	0	58	-24*	-9	50	68	-32*
11	162	13	-11	-10	27	62	-21*	-1	88	21	24*	-8	139	15	18
12	143	14	6	-9	45	59	22*	0	43	74	39*	-7	200	23	11
K,L=	5,	15	-8	40	58	-14*	1	82	20	13*	-6	145	14	7	
-12	8	68	-43*	-7	48	55	5*	2	0	53	-19*	-5	246	13	-15
												0	54	59	49*

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H2O

PAGE 16

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
1	24	60	-30*	2	329	9	-1	4	405	12	1	6	121	10	-9
2	0	60	-6*	3	318	9	5	5	164	8	-9	7	331	10	-1
3	62	67	22*	4	169	8	2	6	310	9	4	8	136	11	1
4	62	42	50*	5	246	9	14	7	163	9	-1	9	366	11	-17
5	59	60	10*	6	190	8	9	8	156	19	18	10	79	21	9*
6	0	62	-8*	7	194	14	-2	9	178	10	-1	11	214	17	-3
	K,L=	5,	26	8	283	10	-1	10	131	20	-9	12	67	53	-38*-13
-5	89	29	15*	9	100	15	-5	11	189	14	14	K,L=	6,	6	-12
-4	142	18	-5	10	269	9	4	12	214	10	1	-13	31	60	-33*-11
-3	98	26	0*	11	163	11	-8	K,L=	6,	4	-12	95	20	4*-10	118
-2	112	21	11*	12	133	14	-15	-13	55	58	25*-11	46	57	-5*	-9
-1	205	11	4	K,L=	6,	2	-12	74	24	43*-10	133	12	24	-8	127
0	89	25	-16*-13	99	18	-4*	-11	122	17	10	-9	0	64	-44*	-7
1	213	11	5	-12	105	28	11*-10	55	72	5*	-8	130	13	-18	-6
2	80	30	-24*-11	93	17	-7	-9	197	9	7	-7	71	22	-4*	-5
3	90	22	1*-10	39	68	-12*	-8	54	55	8*	-6	161	10	-14	-4
4	134	16	-17	-9	108	11	26	-7	177	8	24	-5	133	14	13
5	83	73	3*	-8	50	41	-16*	-6	93	14	3	-4	185	9	3
	K,L=	5,	27	-7	153	9	7	-5	108	11	-6	-3	73	19	-4*
-3	76	37	55*	-6	135	9	12	-4	64	20	-8*	-2	208	8	3
-2	0	65	-32*	-5	146	9	1	-3	107	11	-7	-1	75	36	19*
-1	45111	19*	-4	155	8	13	-2	106	11	15	0	164	15	-3	2
0	18	62	-31*	-3	209	8	12	-1	249	8	1	1	73	50	3*
1	0	69	-28*	-2	134	9	5	0	137	12	22	2	212	7	0
2	0	64	-37*	-1	192	7	2	1	249	8	-9	3	89	12	11
3	18	79	0*	0	82	22	30*	2	94	11	1	4	159	10	-21
	K,L=	6,	0	1	190	7	-10	3	128	8	7	5	115	11	-10
-12	11	56	-53*	2	148	7	12	4	87	12	6	6	163	8	-20
-10	176	15	6	3	212	7	9	5	120	9	9	7	81	20	13*
-8	207	8	2	4	157	8	12	6	96	12	15	8	143	10	-1
-6	149	11	-9	5	138	9	-7	7	157	10	6	9	78	20	26*
-4	73	15	7*	6	144	9	20	8	68	27	9*	18	133	12	14
-2	225	7	4	7	155	9	5	9	192	13	0	11	83	21	38*
0	430	12	30	8	74	47	16*	10	55	41	3*	12	110	16	6
2	234	8	2	9	75	23	-15*	11	114	15	-4	K,L=	6,	7	
4	92	12	6	10	38	54	-13*	12	67	31	40*-13	215	12	-7	-10
6	151	12	3	11	113	17	3	K,L=	6,	5	-12	95	21	-16*	-9
8	225	9	10	12	100	18	2*-13	75	28	-14*-11	194	15	9	-8	389
10	181	10	-2	K,L=	6,	3	-12	97	19	-9*-10	0	84	-89*	-7	
12	76	26	10*	-13	116	15	4	-11	210	10	-7	-9	38	56	-11*
	K,L=	6,	1	-12	183	11	-14	-10	58	36	-7*	-8	102	15	11
-13	161	11	0	-11	170	11	-7	-9	368	11	-4	-7	242	10	-8
-12	145	12	-7	-10	140	23	4	-8	159	9	12	-6	169	12	-8
-11	172	9	12	-9	178	10	5	-7	349	10	12	-5	446	12	2
-10	263	9	6	-8	144	13	16	-6	123	11	4	-4	216	9	0
-9	114	11	7	-7	154	9	-7	-5	136	14	10	-3	387	11	-7
-8	271	10	-8	-6	332	9	12	-4	124	10	1	-2	219	9	0
-7	196	9	1	-5	191	8	8	-3	220	10	14	-1	121	13	-3
-6	188	8	-4	-4	406	11	3	-2	184	8	16	0	80	18	22*
-5	238	8	3	-3	243	8	10	-1	483	13	-7	1	117	12	-2
-4	183	8	-6	-2	319	9	8	0	88	16	6	2	210	9	-3
-3	310	9	9	-1	329	9	14	1	488	13	-12	3	373	10	-30
-2	347	10	0	0	129	10	12	2	175	15	3	4	197	8	-15
-1	205	9	6	1	301	8	-5	3	202	7	3	5	413	12	-24
0	576	17	11	2	315	9	3	4	107	10	-19	6	165	8	1
1	221	7	11	3	223	12	6	5	129	19	-4	7	226	18	-11

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 17

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL				
11	67	31	5*-11	0	66	-51*	-4	80	29	-9*	5	175	10	5	-2	179	14	-11	
12	128	28	-1*-10	63	50	-24*	-3	96	16	11	6	53	55	-2*	-1	210	11	13	
K,L =	6,	10	-9	42	59	1*	-2	135	23	25	7	101	17	-7	0	194	11	-5	
-12	0	66	-26*	-8	121	14	27	-1	148	12	2	8	0	58	-21*	1	166	12	-15
-11	96	24	-3*-7	75	25	-18*	0	128	23	-3	9	0	59	-39*	2	197	10	17	
-10	0	62	-64*	-6	161	11	-3	1	157	11	5	10	0	60	-20*	3	131	14	0
-9	128	15	1	-5	0	53	-10*	2	107	15	15	K,L =	6,	17	4	146	14	-6	
-8	117	15	0	-4	187	10	2	3	90	18	1*	-10	153	15	0	5	114	19	-5
-7	145	11	8	-3	75	21	-7*	4	106	14	20	-9	33	63	-31*	6	114	19	-17
-6	48	57	-4*	-2	158	12	1	5	52	49	25*	-8	166	13	-5	7	139	15	-11
-5	152	10	8	-1	69	26	13*	6	102	23	11*	-7	132	22	-12	8	146	15	-10
-4	62	26	5*	0	83	21	-11*	7	87	22	-15*	-6	89	24	-41*	9	180	12	19
-3	150	12	-23	1	43	54	-9*	8	96	17	7	-5	230	10	-8	K,L =	6,	20	
-2	85	28	-2*	2	145	12	-6	9	98	25	-16*	-4	86	46	28*	-8	35	63	-14*
-1	139	12	-1	3	93	16	15	10	107	25	16*	-3	237	10	-8	-7	54	62	11*
0	138	12	12	4	199	8	4	11	28	62	-46*	-2	216	10	8	-6	50	63	-44*
1	127	21	-9	5	0	58	-12*	K,L =	6,	15	-1	133	15	-2	-5	65	75	-4*	
2	110	12	5	6	149	10	-10	-11	133	18	3	0	227	11	5	-4	131	29	-15*
3	139	10	-27	7	81	40	-11*-10	150	15	10	1	115	23	-18*	-3	20	61	-40*	
4	45	48	-4*	8	75	39	-22*	-9	133	15	8	2	196	10	-6	-2	96104	-3*	
5	146	9	6	9	63	32	32*	-8	125	16	-1	3	240	12	5	-1	45	63	-13*
6	53	33	-3*	10	59	65	-29*	-7	164	11	8	4	0	64	-56*	0	41	70	31*
7	124	12	-11	11	56	59	10*	-6	160	11	2	5	222	13	-9	1	0	62	-59*
8	88	17	-13*	12	100	29	-9*	-5	250	9	1	6	121	15	-11	2	94	21	2*
9	109	15	-20	K,L =	6,	13	-4	158	11	-8	7	143	13	-5	3	81	23	27*	
10	71	30	0*-11	199	19	18	-3	249	13	-20	8	149	14	-20	4	157	13	14	
11	85	24	-10*-10	90	25	3*	-2	158	13	10	9	41	67	-28*	5	0	64	-67*	
12	71	30	52*	-9	270	10	7	-1	188	10	3	10	151	31	9*	6	119	29	16*
K,L =	6,	11	-8	91	21	-7*	0	205	11	-5	K,L =	6,	18	7	0	64	-50*		
-12	205	12	4	-7	276	12	6	1	201	9	7	-9	0	65	-54*	8	50	62	7*
-11	98	39	16*	-6	171	10	8	2	131	14	-6	-8	127	25	27*	K,L =	6,	21	
-10	91	37	-14*	-5	77	22	10*	3	258	10	0	-7	25	60	-15*	-8	78	32	-8*
-9	79	79	-6*	-4	147	11	-7	4	192	9	17	-6	120	15	16	-7	60	65	-6*
-8	116	19	8	-3	213	10	-10	5	249	9	-7	-5	39	59	-16*	-6	206	11	3
-7	150	13	32	-2	164	11	-19	6	133	13	-24	-4	77	27	-4*	-5	88	24	30*
-6	287	9	-6	-1	353	10	-12	7	120	15	-26	-3	49	93	22*	-4	262	11	-19
-5	195	9	-6	0	90	20	20*	8	144	12	12	-2	137	14	11	-3	22	91	-18*
-4	383	12	-20	1	348	10	-19	9	105	18	-21	-1	70	36	-23*	-2	191	19	8
-3	197	14	-18	2	189	10	1	10	135	31	-4*	0	156	13	1	-1	131	18	24
-2	225	9	3	3	210	9	-2	11	123	23	-4	1	74	26	-7*	0	65	-68*	
-1	148	13	17	4	154	10	-7	K,L =	6,	16	2	105	36	-15*	1	81	26	-22*	
0	128	28	0*	5	100	13	31	-10	64	46	45*	3	0	61	-30*	2	191	10	18
1	124	13	-13	6	152	10	-9	-9	0	62	-44*	4	74	31	-5*	3	0	59	-33*
2	236	9	7	7	257	19	-10	-8	0	61	-19*	5	0	60	-54*	4	270	10	-3
3	211	8	-14	8	85	60	-24*	-7	113	27	13*	6	68	78	-38*	5	64	66	6*
4	367	11	-31	9	247	9	-3	-6	60	39	-1*	7	40	62	-9*	6	236	11	20
5	192	8	4	10	95	19	11*	-5	174	11	3	8	119	26	12*	7	0	66	-68*
6	260	9	-34	11	182	12	-9	-4	17	65	-1*	9	44	73	-7*	8	80	82	-1*
7	127	11	16	K,L =	6,	14	-3	157	14	-11	K,L =	6,	19	K,L =	6,	22			
8	91	23	1*-11	53	65	-18*	-2	45	58	39*	-9	151	15	-7	-7	32	65	-43*	
9	61	35	-23*-10	92	25	-9*	-1	70	52	-16*	-8	154	14	0	-6	0	63	-32*	
10	80	24	-13*	-9	126	20	12	0	61	-25*	-7	134	20	-8	-5	118	18	20	
11	68	36	-17*	-8	78	27	-2*	1	82	21	-5*	-6	115	21	-13*	-4	88	25	49*
12	191	19	-5	-7	122	23	10*	2	77	21	71*	-5	150	12	31	-3	75	35	-23*
K,L =	6,	12	-6	98	17	6	3	151	13	-6	-4	148	13	-9	-2	55	64	19*	
-12	103	24	-5*	-5	43	53	28*	4	52	55	24*	-3	119	17	-14	-1	113	21	2

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 10

H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL	H	FOB	SG	DEL
0	54	61	14*	10	108	16	9	-11	0	61	-76*	-7	152	22	10
1	76	31	-20*	12	182	12	0	-10	225	10	6	-6	65	30	-33*
2	30	58	-8*	K,L=	7,	1	-9	82	20	16*	-5	329	10	10	0
3	106	18	8	-12	118	43	-17*	-8	205	10	-19	-4	105	14	-19
4	0	62	-28*	-11	130	14	-21	-7	123	16	-7	-3	299	9	6
5	54	64	-47*	-10	81	21	35*	-6	195	9	0	-2	172	10	-10
6	0	65	-36*	-9	146	12	-23	-5	136	11	27	-1	73	21	0*
7	107	22	28*	-8	61	41	3*	-4	154	10	-3	0	125	13	11
K,L=	6,	23	-7	179	12	-2	-3	163	13	14	1	69	45	-11*	6
-6	92	27	-17*	-6	186	9	2	-2	258	9	-3	2	175	8	-10
-5	0	66	-52*	-5	150	9	4	-1	51	63	-16*	3	263	8	-14
-4	26	64	-27*	-4	265	8	16	0	287	15	-5	4	121	10	-13
-3	62	66	-32*	-3	209	8	1	1	65	18	-4*	5	314	9	-6
-2	131	23	-23	-2	146	9	13	2	223	8	-8	6	121	12	9
-1	184	33	0	-1	247	8	15	3	166	15	2	7	130	13	-18
K,L=	7,	8	0	160	15	-9	0	34	51	16*	4	152	11	0	8
1	161	13	-11	1	236	8	6	5	147	9	25	9	66	28	56*
2	148	16	-6	2	143	12	6	6	188	9	-8	10	45	59	-24*
3	40	62	-51*	3	199	8	4	7	121	13	-9	11	134	17	10
4	94	24	40*	4	268	8	16	8	221	9	-4	12	70	36	-12*
5	37	80	-1*	5	156	9	10	9	54	55	-6*	K,L=	7,	6	-6
6	93	28	-18*	6	197	10	1	10	225	10	16	-12	41	62	-28*
K,L=	6,	24	7	195	14	3	11	64	41	-19*	-11	129	16	-7	-4
-5	70	75	8*	8	74	22	34*	12	132	15	-2	-10	126	15	3
-4	99	24	24*	9	143	12	-11	K,L=	7,	4	-9	192	11	-3	-2
-3	114	32	34*	10	25	58	-20*	-12	38	60	-16*	-8	167	11	22
-2	66	69	-29*	11	165	11	16	-11	127	15	-26	-7	182	10	4
-1	51	63	27*	12	144	20	12	-10	90	20	0*	-6	125	23	-7
0	111	18	47	K,L=	7,	2	-9	73	35	-9*	-5	166	10	4	2
1	72	32	44*-12	45	65	-44*	-8	96	17	11	-4	80	21	-11*	3
2	82	27	-11*-11	126	17	7	-7	174	14	-14	-3	189	10	2	4
3	54	81	-22*-10	175	10	-3	-6	83	18	10*	-2	188	9	16	5
4	92	22	15*	-9	173	10	-4	-5	362	11	17	-1	199	9	-3
5	52	65	-11*	-8	190	14	8	-4	54	36	30*	0	187	12	17
K,L=	6,	25	-7	158	10	-4	-3	267	9	0	1	210	9	2	8
-3	239	17	28	-6	148	18	1	-2	135	17	-7	2	159	9	-13
-2	0	93	-9*	-5	65	23	8*	-1	150	10	-2	3	179	8	2
-1	107	21	22*	-4	109	13	-6	0	153	10	28	4	80	15	0*
0	0	63	-26*	-3	195	8	20	1	137	9	-13	5	159	14	-12
1	78	32	-16*	-2	205	8	3	2	119	16	-6	6	134	11	-7
2	94	37	78*	-1	227	8	11	3	267	8	-10	7	179	9	-4
3	201	11	-2	0	244	9	-1	4	0	47	-16*	8	144	12	-1
K,L=	6,	26	1	205	8	-14	5	339	11	-5	9	190	10	-5	-8
0	48	65	-26*	2	196	8	-4	6	50	50	-19*	10	85	25	-30*
K,L=	7,	0	3	187	8	2	7	184	9	5	11	146	24	6	-6
-12	159	21	-28	4	123	11	2	8	72	25	-18*	12	89	45	15*
-10	88	21	-17*	5	69	20	6*	9	70	27	-10*	K,L=	7,	7	-4
-8	127	17	18	6	162	12	15	10	104	19	15	-11	179	11	20
-6	284	9	2	7	157	11	-11	11	147	12	5	-10	129	14	29
-4	382	10	4	8	181	10	2	12	88	39	37*	-9	265	10	17
-2	234	8	-9	9	160	11	-10	K,L=	7,	5	-8	110	16	12	0
0	73	55	-32*	10	183	11	5	-12	75	30	-4*	-7	187	15	-3
2	238	8	-7	11	111	17	-4	-11	152	17	19	-6	96	17	4
4	392	13	6	12	125	16	29	-10	35	58	-23*	-5	150	10	24
6	292	9	8	K,L=	7,	3	-9	0	57	-3*	-4	53	53	3*	4
8	82	21	-8*	-12	130	22	-5	-8	131	13	5	-3	159	12	-7
												5	22	50	-34*

**STRUCTURE FACTORS CONTINUED FOR  
ALPHA- $ZnO_2S_04 \cdot 7H_2O$**

PAGE 19

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL
6	238	14	-11	-8	209	12	7	4	135	13	6	1	174	12	-5
7	66	26	11*	-7	0	61	-85*	5	193	10	-1	2	149	14	-5
8	141	11	22	-6	115	16	3	6	102	30	6*	3	136	22	35
9	33	57	17*	-5	97	19	-3*	7	154	12	2	4	150	15	9
10	86	23	2*	-4	67	29	9*	8	56	69	11*	5	0	90	-34*
11	105	20	35*	-3	124	14	3	9	52	68	-15*	6	160	16	28
K,L=	7,	10	-2	209	10	-21	K,L=	7,	15	7	120	20	-24	1	
-11	109	21	24*	-1	113	19	16	-9	162	14	22	8	109	19	13
-10	94	26	-22*	0	275	11	1	-8	92	25	-17*	K,L=	7,	18	3
-9	98	35	5*	1	84	30	-6*	-7	97	23	-10*	-8	89	26	24*
-8	148	14	-6	2	214	10	-9	-6	135	15	-15	-7	52	82	-27*
-7	112	29	0*	3	100	19	-21*	-5	46	87	-24*	-6	148	25	-21
-6	188	10	5	4	46	58	-6*	-4	132	15	-10	-5	70115	-56*	-4
-5	118	24	17*	5	88	30	-7*	-3	51	68	-7*	-4	166	14	-17
-4	213	13	3	6	112	14	3	-2	126	16	-12	-3	115	25	-10*
-3	129	12	26	7	105	19	8	-1	172	21	3	-2	142	15	12
-2	195	13	-2	8	185	11	-15	0	210	12	-4	-1	100	22	34*
-1	121	14	11	9	0	62	-52*	1	191	11	8	0	99	21	75*
0	195	11	-10	10	178	12	2	2	137	27	3*	1	60	71	5*
1	98	18	-6*	K,L=	7,	13	3	0	64	-58*	2	124	17	-8	
2	185	11	-10	-10	67	52	-17*	4	137	14	-11	3	123	17	-10
3	126	15	25	-9	0	79	-70*	5	72	37	-7*	4	190	12	5
4	181	9	-19	-8	68	39	-1*	6	134	18	-6	5	126	23	4
5	109	13	2	-7	179	13	14	7	119	15	18	6	180	12	15
6	191	9	0	-6	87	22	-1*	8	115	16	3	7	0	63	-73*
7	106	15	-1	-5	216	10	-3	9	153	13	7	K,L=	7,	19	1
8	129	14	-26	-4	65	30	46*	K,L=	7,	16	-7	141	15	8	2
9	73	75	-19*	-3	205	11	-28	-9	205	13	3	-6	118	18	26
10	133	14	5	-2	144	14	35	-8	93	22	57*	-5	174	15	19
11	96	23	10*	-1	136	15	-19	-7	185	12	14	-4	127	16	30
K,L=	7,	11	0	113	38	3*	-6	9	85	-5*	-3	124	19	-10	
-11	124	23	10*	1	152	19	-15	-5	13	78	-63*	-2	0	66	-54*
-10	169	15	-8	2	108	36	1*	-4	0	61	-27*	-1	137	23	3
-9	123	17	5	3	231	9	7	-3	117	16	-6	0	0	64	-43*
-8	187	12	-4	4	66	27	40*	-2	53	63	-20*	1	116	19	-11
-7	96	20	4*	5	203	10	-6	-1	244	11	6	2	62	51	0*
-6	110	21	6*	6	74	25	-15*	0	63	51	34*	3	164	13	18
-5	124	18	-5	7	177	11	3	1	245	13	1	4	91	28	-9*
-4	74	23	43*	8	27	62	-41*	2	67	34	-1*	5	140	18	-9
-3	94	20	-35*	9	80	87	16*	3	133	18	7	6	89	27	-9*
-2	162	11	-6	10	53	62	-18*	4	0	68	-33*	7	107	22	-12*-10
-1	173	11	7	K,L=	7,	14	5	61106	-22*	K,L=	7,	20	-9	0	62
0	330	11	10	-10	60	65	-3*	6	33	58	5*	-6	123	17	12
1	172	20	16	-9	0	65	-65*	7	189	11	23	-5	39	64	-10*
2	192	10	12	-8	99	38	56*	8	51	60	14*	-4	73	95	-4*
3	139	13	0	-7	130	17	-20	9	209	11	6	-3	55	76	11*
4	34	51	-1*	-6	109	19	1	K,L=	7,	17	-2	143	16	7	
5	119	13	-17	-5	185	16	-16	-8	128	16	29	-1	45	66	12*
6	122	12	24	-4	111	18	-14	-7	127	17	-11	0	180	16	-12
7	120	13	23	-3	201	15	-16	-6	135	16	-3	1	64	47	28*
8	210	10	5	-2	76	28	-11*	-5	42	67	17*	2	133	16	-19
9	139	12	20	-1	132	26	-15*	-4	132	16	2	3	91	23	51*
10	192	11	9	0	18	62	-17*	-3	77	32	-23*	4	50	64	-29*
K,L=	7,	12	1	151	13	-5	-2	149	14	1	5	51	76	5*	
-10	185	13	9	2	77	43	-10*	-1	172	13	6	6	110	28	-6*
-9	66	42	20*	3	195	11	-14	0	128	16	27	K,L=	7,	21	5
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STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE 20

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL
6	125	13	15	-4	125	16	3	8	163	12	-4	1	4	62	-42*
7	21	62	-23*	-3	155	11	4	9	130	15	12	2	117	15	-9
8	115	28	-16*	-2	104	15	9	10	136	27	4*	3	12	55	-38*
9	0	69	-2*	-1	346	13	-7	K,L=	8,	7	4	95	16	-2	
10	140	14	22	0	110	16	20	-10	0	63	-65*	5	73	22	35*
	K,L=	8,	2	1	341	10	-17	-9	36	64	-38*	6	81	24	-31*
-10	90	22	14*	2	107	12	8	-8	73	34	13*	7	58	46	15*
-9	64	38	-21*	3	133	11	-17	-7	89	24	-12*	8	130	15	-6
-8	43	62	-30*	4	137	11	9	-6	88	25	5*	9	0	82	-37*
-7	189	11	-9	5	25	55	-31*	-5	157	12	16	K,L=	8,	10	K,L=
-6	193	10	10	6	136	15	9	-4	95	24	6*	-9	115	22	-22*
-5	226	10	7	7	241	9	11	-3	142	13	9	-8	200	17	11
-4	249	9	9	8	71	53	21*	-2	83	43	19*	-7	161	14	-1
-3	257	9	6	9	306	10	5	-1	52	57	-12*	-6	138	14	17
-2	220	9	12	10	57	60	-10*	0	45	59	-3*	-5	176	21	-6
-1	159	17	5	K,L=	8,	5	1	98	19	39*	-4	130	16	-9	
0	0	60	-11*	-10	58	60	50*	2	67	25	2*	-3	192	11	-2
1	175	10	10	-9	129	16	-16	3	135	11	-6	-2	135	15	-1
2	210	9	3	-8	42	69	11*	4	100	15	8	-1	198	16	0
3	258	9	5	-7	139	15	-4	5	157	13	11	0	223	11	-7
4	257	9	13	-6	47	61	21*	6	55	56	-32*	1	207	13	25
5	205	9	-1	-5	87	22	-18*	7	129	13	28	2	187	19	26
6	185	11	3	-4	68	31	49*	8	70	30	5*	3	179	11	-19
7	205	12	7	-3	111	16	-7	9	85	60	14*	4	122	14	-13
8	121	13	45	-2	52	55	17*	10	68	41	4*	5	180	11	-1
9	102	34	18*	-1	168	11	3	K,L=	8,	8	6	133	23	8	
10	0	62	-75*	0	101	17	82	-9	97	24	33*	7	153	18	-8
	K,L=	8,	3	1	175	9	9	-8	205	12	3	8	167	12	-3
-10	53	59	7*	2	0	51	-35*	-7	140	16	-22	9	129	15	-10
-9	92	22	-3*	3	118	12	-2	-6	167	33	11*	K,L=	8,	11	-6
-8	0	58	-47*	4	43	78	21*	-5	251	11	-6	-8	121	17	34
-7	80	84	-23*	5	108	31	-2*	-4	26	79	-12*	-7	32	63	4*
-6	80	24	-19*	6	46	54	18*	-3	204	10	5	-6	134	15	18
-5	86	22	-15*	7	148	12	6	-2	202	10	-8	-5	40	62	-27*
-4	136	15	6	8	56	84	22*	-1	98	33	-23*	-4	150	13	5
-3	117	13	15	9	153	15	7	0	247	11	1	-3	0	90	-52*
-2	96	16	7	10	50	79	36*	1	85	27	-35*	-2	124	21	15
-1	124	13	6	K,L=	8,	6	2	205	10	-10	-1	0	61	-27*	2
0	64	77	19*	-10	136	15	14	3	207	9	-16	0	100	21	15*
1	118	11	-3	-9	146	14	28	4	36	54	-11*	1	66	39	45*
2	102	13	15	-8	197	11	18	5	244	13	-8	2	131	14	19
3	102	14	-4	-7	133	15	8	6	168	10	8	3	0	57	-54*
4	142	11	12	-6	232	10	6	7	157	11	11	4	152	12	0
5	90	19	-21*	-5	206	11	10	8	218	10	10	5	106	26	40*
6	103	18	11	-4	228	16	5	9	85	24	15*	6	121	15	-3
7	95	20	-13*	-3	206	13	18	K,L=	8,	9	7	31	58	0*	-6
8	0	77	-50*	-2	217	9	6	-9	59	63	19*	8	51	53	-24*
9	100	25	-3*	-1	96	29	-16*	-8	141	16	7	K,L=	8,	12	-4
10	89	22	42*	0	155	13	2	-7	48	62	5*	-8	75	37	-9*
	K,L=	8,	4	1	129	12	6	-6	129	16	16	-7	111	36	-18*
-10	75	28	9*	2	206	9	-13	-5	49	60	12*	-6	226	15	-8
-9	301	12	3	3	183	9	-4	-4	26	74	-69*	-5	84	26	25*
-8	51	58	7*	4	203	9	-11	-3	78	26	34*	-4	282	13	1
-7	244	12	9	5	195	18	-14	-2	119	16	-3	-3	130	15	25
-6	148	13	6	6	218	9	-4	-1	62	66	18*	-2	174	13	-22
-5	80	38	19*	7	143	12	22	0	184	12	11	-1	115	18	-1

STRUCTURE FACTORS CONTINUED FOR  
ALPHA- $\text{ZnO}_2\text{S}_0_4 \cdot 7\text{H}_2\text{O}$

PAGE21

H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL	H	F08	SG	DEL				
5	119	18	9	0	143	26	4	6	192	11	8	-3	130	18	-4				
6	78	26	49*	2	86	24	-3*	7	125	19	-13	-2	181	12	24				
7	112	18	11	4	58	59	25*	8	229	11	13	-1	303	11	4				
K,L=	8,	16	6	86	25	23*	K,L=	9,	4	0	150	15	20	-2	185	14	-12		
-6	0	69	-67*	8	54	62	-27*	-7	94	22	29*	1	290	11	3	-1	188	27	31
-5	235	12	-22	K,L=	9,	1	-6	23	62	1*	2	155	12	6	0	311	12	5	
-4	17	75	-34*	-8	46	61	-44*	-5	64	78	22*	3	143	12	9	1	155	17	11
-3	246	11	-12	-7	171	12	16	-4	6	61	-35*	4	51	55	16*	2	190	12	5
-2	41	67	17*	-6	190	11	-12	-3	60	49	9*	5	81	38	2*	3	87	30	-12*
-1	146	14	47	-5	110	17	-1	-2	23	72	-1*	6	105	19	-1	4	63	40	12*
0	0	68	-33*	-4	260	13	-11	-1	108	18	4	7	195	12	-4	5	78	30	-20*
1	90	27	-16*	-3	184	11	4	0	20	86	5*	K,L=	9,	8	K,L=	9,	12		
2	4	71	-24*	-2	180	11	17	1	129	12	33	-7	66	75	30*	-5	0	74	-32*
3	247	12	4	-1	207	12	0	2	58	59	35*	-6	44	65	3*	-4	65	56	-13*
4	30	65	-36*	0	102	21	21*	3	93	17	35	-5	26	64	-34*	-3	0	65	-48*
5	249	11	-8	1	217	10	5	4	44	55	5*	-4	0	65	-40*	-2	55	64	3*
6	0	64	-63*	2	185	10	16	5	67	48	29*	-3	51	62	-16*	-1	57	84	2*
K,L=	8,	17	3	183	11	6	6	82	24	52*	-2	63	92	-4*	0	55	68	37*	
-5	67	53	-24*	4	313	10	45	7	74	38	10*	-1	19	64	13*	1	0	67	-57*
-4	31	64	-4*	5	110	41	-5*	K,L=	9,	5	0	75	39	-2*	2	58	65	2*	
-3	81	36	-25*	6	207	27	3	-7	133	35	-17*	1	0	67	-14*	3	58	62	17*
-2	82	31	20*	7	159	14	-11	-6	81	30	-6*	2	33	60	-29*	4	90	23	16*
-1	69	52	-8*	8	89	24	14*	-5	319	11	2	3	88	20	21*	5	54	61	22*
0	0	88	-66*	K,L=	9,	2	-4	87	25	-20*	4	0	61	-35*	K,L=	9,	13		
1	99	39	24*	-8	45	59	9*	-3	293	11	0	5	52	65	-16*	-4	89	26	40*
2	68	45	-1*	-7	0	61	-14*	-2	130	19	4	6	70	76	30*	-3	208	13	-28
3	98	42	-1*	-6	44	68	-16*	-1	82	29	-13*	7	53	70	18*	-2	132	34	16*
4	56	65	15*	-5	83	25	6*	0	104	22	27*	K,L=	9,	9	-1	144	17	21	
5	131	17	40	-4	56	60	-30*	1	51	59	-50*	-6	234	12	-3	0	127	23	19*
K,L=	8,	18	-3	104	19	35*	2	144	11	11	-5	81	97	13*	1	129	24	-3*	
-4	53	68	-17*	-2	80	26	3*	3	266	10	-14	-4	310	11	-5	2	131	20	16
-3	47	80	-7*	-1	0	58	-40*	4	39	57	-56*	-3	78	32	18*	3	226	12	-7
-2	192	14	9	0	101	20	44*	5	327	10	4	-2	224	12	0	4	52	63	-5*
-1	144	18	4	1	27	55	-12*	6	116	28	26*	-1	49	64	-11*	K,L=	9,	14	
0	240	12	14	2	79	49	4*	7	135	16	-18	0	0	67	-10*	-3	0	72	-51*
1	127	19	-1	3	77	25	9*	K,L=	9,	6	1	33	72	-25*	-2	32	67	10*	
2	172	14	-2	4	94	19	10*	-7	8	75	-65*	2	217	11	-1	-1	31	79	-44*
3	63	68	13*	5	55	59	-21*	-6	70	35	31*	3	79	24	12*	0	42	91	-11*
4	79	84	12*	6	22	60	-31*	-5	82	28	15*	4	302	10	-7	1	103	24	27*
K,L=	8,	19	7	7	60	-18*	-4	75	31	11*	5	0	60	-61*	2	84	86	60*	
-3	49	77	26*	8	35	62	0*	-3	78	31	-1*	6	235	10	-14	3	73	51	24*
-2	78	61	-6*	K,L=	9,	3	-2	103	19	63	K,L=	9,	10	K,L=	9,	15			
-1	86	87	29*	-8	194	12	-9	-1	67	43	-6*	-6	70	71	6*	-2	128	19	-1
0	0	86	-93*	-7	165	12	22	0	69	40	66*	-5	79	85	49*	-1	202	13	10
1	84	46	31*	-6	189	11	13	1	109	17	36	-4	48	64	4*	0	148	20	-12
2	88	29	0*	-5	145	15	-14	2	43	56	10*	-3	49	63	17*	1	176	16	-20
3	0	67	-23*	-4	128	15	26	3	68	28	-10*	-2	80	31	-2*	2	126	21	-1
K,L=	8,	20	-3	177	11	17	4	29	55	-37*	-1	83	49	56*	K,L=	10,	0		
-1	105	33	23*	-2	271	10	26	5	61	39	-1*	0	0	70	-71*	-4	98	19	56*
0	17	67	-14*	-1	135	18	4	6	0	59	-42*	1	51	66	23*	-2	220	10	-6
1	92	44	12*	0	314	11	6	7	84	26	12*	2	92	39	10*	0	357	12	6
K,L=	9,	0	1	134	12	3	K,L=	9,	7	3	58	56	33*	2	251	15	24		
-8	37	60	-35*	2	222	12	-12	-7	188	14	-10	4	27	59	-12*	K,L=	10,	1	
-6	82	25	13*	3	181	10	6	-6	128	17	21	5	0	60	-24*	-4	95	58	51*
-4	87	23	58*	4	117	23	4*	-5	104	21	18*	6	59	82	-5*	-3	83	37	11*
-2	104	16	11	5	167	12	13	-4	47	68	19*	K,L=	9,	11	-2	21	60	-22*	

STRUCTURE FACTORS CONTINUED FOR  
ALPHA-2U02S04.7H20

PAGE22

	H FOB SG DEL				
-1	80 27 0*				
0	0 72 -44*				
1	131 14 42				
2	77 63 31*				
3	61 62 -13*				
	K,L = 10, 2				
-3	194 12 7				
-2	160 13 10				
-1	114 18 24				
0	87 88 19*				
1	114 17 20				
2	162 13 12				
3	178 13 -11				
	K,L = 10, 3				
-3	61 84 37*				
-2	97 22 19*				
-1	54 63 47*				
0	83 37 -17*				
1	25 58 17*				
2	76 29 -6*				
3	0 60 -25*				
	K,L = 10, 4				
-3	107 22 -11*				
-2	49 64 -13*				
-1	249 12 -14				
0	110 35 83*				
1	240 11 -27				
2	74 27 11*				
3	114 17 -1				
	K,L = 10, 5				
-3	78 33 18*				
-2	0 88 -62*				
-1	104 23 37*				
0	26 68 -16*				
1	62 56 -7*				
2	48 59 -20*				
	K,L = 10, 6				
-2	137 18 -6				
-1	134 17 11				
0	52 70 -37*				
1	126 18 -6				
2	141 15 -8				
	K,L = 10, 7				
-1	47 68 -39*				
0	57 68 4*				
1	68 55 -15*				

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