

Table 3. Powder pattern for  $\text{In}_3\text{Te}_4$  (CuK $\alpha$  radiation)

$d$ (Å)					$d$ (Å)				
		Rel. $I$					Rel. $I$		
$hk \cdot l$	obs.	calc.	obs.	calc.	$hk \cdot l$	obs.	calc.	obs.	calc.
00-3	13.5	13.53	VW	60	12-17	1.205	1.203	VW	32
00-6	6.78	6.79	VVW	20	11-30	1.142	1.142	VVW	23
00-9	4.50	4.51	VW	65	02-31		1.068		24
00-12	3.386	3.382	VW	71	22-0	1.066	1.065	W-M*	42
10-7	3.093	3.110	VVS	1250	11-33		1.065		1
01-8	3.006	2.992	VW	39	30-21		1.037		11
10-10	2.729	2.732	W	76	03-21	1.039	1.037	VW	11
01-14	2.272	2.278	M-S	342	22-9		1.036		5
11-0	2.128	2.128	S	463	13-7	1.008	1.008	W-M	65
11-3		2.109	W	35	11-36		0.9963		18
10-16	2.098	2.097		65	30-24	0.9955	0.9945	W*	34
01-17	2.003	2.004	W-M	97	03-24		0.9945		34
00-21		1.932		34	31-14	0.9648	0.9649	W	40
11-9	1.934	1.935	W-M	37	21-31	0.9554	0.9544	W	40
10-19	1.860	1.848	VVW	15	10-43		0.9143		12
11-12		1.801	VW	32	31-20		0.9136		5
20-5	1.800	1.797		6	40-7	0.9127	0.9109	VW*	30
02-7	1.754	1.756	M-S	215	30-30		0.9100		6
00-24	1.691	1.691	VW	33	03-30		0.9100		6
01-23	1.587	1.591	VW	35	00-45	0.9021	0.9018	VW*	3
20-14	1.555	1.555	W-M	93	22-24		0.9011		32
20-17	1.458	1.459	VW	32	04-14	0.8785	0.8789	VW*	19
11-21	1.431	1.431	W	69	12-38	0.8491	0.8478	W*	38
21-7		1.354		166	01-47		0.8407		24
00-30	1.355	1.353	M-S	5	02-43		0.8402		27
10-28		1.349		10	04-20	0.8388	0.8396	M*	3
12-14	1.255	1.256	W-M	83	32-7		0.8375		69
10-31		1.234		38	22-30		0.8368		14
00-33		1.230	M*	3	23-14	0.8130	0.8125	W*	54
30-0	1.231	1.229		66	13-31		0.8062		60
11-27		1.228		8	41-0	0.8064	0.8051	M*	105

\* Broad line.

the powder photograph. The lattice constants determined from the powder photograph (CuK $\alpha$  radiation) are  $a = 4.26 \pm 0.01$ ,  $c = 40.6 \pm 0.1$  Å or in the rhombohedral description  $\alpha = 13.7_5$  Å,  $\alpha = 17.8_0^\circ$ . The powder pattern indexed on the hexagonal basis is given in Table 3. Shown also are qualitatively estimated intensities and those calculated\* from

$$I_{\text{rel}} = p|F|^2 \times 10^{-5} L \cdot P$$

where  $p$  is the multiplicity,  $F$ , the structure factor

\* The program used was originally derived by TREUTING<sup>(20)</sup> for the IBM 704 and modified for the IBM 7094 by N. V. Vaughan and A. R. Storm.

and  $L \cdot P$  the Lorentz-polarization factor. The positional parameters were those obtained from the single crystal analysis, and because the program\* allows only individual isotropic temperature factors, In(1) and Te(2) were assigned values of  $0.5 \text{ \AA}^2$  and In(2) and Te(1) values of  $1.0 \text{ \AA}^2$ .†

When this pressure-induced  $\text{In}_3\text{Te}_4$  phase was heated at  $200^\circ\text{C}$  in an evacuated sealed fused silica tube for 67 hr, it decomposed into a mixture of the atmospheric pressure  $\text{In}_2\text{Te}_3$  phase and an NaCl-type phase with composition (determined from the

† Differences in vibration amplitudes of the atoms were indicated by the results from the single crystal analysis.

lattice constant appears to fit under a pressure-released NaCl-type a probable the contains exc

The pressure-released conductor. This is a transition in the conductivity of this material on the

## SOME RESULTS

The pressure-released phase was determined by the subject of the present work. We discuss the results obtained after the phase was released and the temperature dependence of the conductivity. It is difficult to un-

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