

Table 3. Powder pattern for In_3Te_4 ($\text{CuK}\alpha$ radiation)

$hk \cdot l$	d (Å)		Rel. I		$hk \cdot l$	d (Å)		Rel. I	
	obs.	calc.	obs.	calc.		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	1·066	{1·068	W-M*	{24
00·12	3·386	3·382	VW	71	22·0		{1·065		{1
10·7	3·093	3·110	VVS	1250	11·33	{1·065	{11		
01·8	3·006	2·992	VW	39	30·21	{1·037	{11		
10·10	2·729	2·732	W	76	03·21	{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	2·098	{2·109	W	{35	11·36	0·9955	{0·9963	W*	{18
10·16		{2·097		{65	30·24		{0·9945		{34
01·17	2·003	2·004	W-M	97	03·24		{0·9945		{34
00·21	1·934	{1·932	W-M	{34	31·14	0·9648	0·9649	W	40
11·9		{1·935		{37	21·31	0·9554	0·9544	W	40
10·19	1·860	1·848	VVW	15	10·43	0·9127	{0·9143	VW*	{12
11·12	1·800	{1·801	VW	{32	31·20		{0·9136		{5
20·5		{1·797		{6	40·7	{0·9109	{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	1·355	{1·354	M-S	{166	01·47	0·8388	{0·8407	M*	{24
00·30		{1·353		{5	02·43		{0·8402		{27
10·28		{1·349		{10	04·20		{0·8396		{3
12·14	1·255	1·256	W-M	83	32·7		{0·8375		{69
10·31	1·231	{1·234	M*	{38	22·30		{0·8368		{14
00·33		{1·230		{3	23·14	0·8130	0·8125	W*	54
30·0		{1·229		{66	13·31	0·8064	{0·8062	M*	{60
11·27		{1·228		{8	41·0		{0·8051		{105

* Broad line.

the powder photograph. The lattice constants determined from the powder photograph ($\text{CuK}\alpha$ radiation) are $a = 4.26 \pm 0.01$, $c = 40.6 \pm 0.1$ Å or in the rhombohedral description $\alpha = 13.75^\circ$, $\alpha = 17.80^\circ$. 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⁽²⁰⁾ 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 \AA^2 and In(2) and Te(1) values of 1.0 \AA^2 .

When this pressure-induced In_3Te_4 phase was heated at 200°C in an evacuated sealed fused silica tube for 67 hr, it decomposed into a mixture of the atmospheric pressure In_2Te_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 release NaCl-type a probable the contains exc

The pressure conductor. T a transition tivity of this tion on the D

SOME RESULTS

The pressure determined by the subject of we discuss t obtained after and temperature released. The difficult to u

It appears In_2Te_3 phase known Bi_2Te_3 ably as a single discern the patterns, be In_3Te_4 -type tures of the t belongs to the atoms on the In_3Te_4 has t Te-In-, divi in approxi must have th dividing the approximatel two phases a one would ex (threefold ax In_3Te_4 is ve constants of

The deduced induced Bi_2Te_3 on the result photography, crystalline pi