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X-ray data for the phosphides of aluminium, gallium, and indium.

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A comparison of the intensities of the lines in powder photographs of AlP and InP obtained in this laboratory with previously reported values (Passerini, 1928; Iandelli,* 1941) has shown significant differences. We have calculated the intensities, using the relation

$$I_c = p|F|^2(1+\cos^2 2\theta)/(\sin^2\theta\cos\theta)$$

(p = multiplicity, θ = Bragg angle of reflection, $|F|$ = structure factor modulus) and atomic scattering factors for neutral atoms (*Internationale Tabellen zur Bestimmung von Kristallstrukturen*, 1935; Thomas & Umeda, 1957) and find a good agreement with the observed values.

* In private correspondence with Prof. Iandelli we learned that his calculated values for InP include an absorption correction with $\mu r = \infty$.

The relevant data and, for completeness, analogous data for GaP, are reported in Table 1.

The calculations of intensities were done on our Bendix Computer, Model G–15–D, by Mr F. W. Kuhlman, whom we wish to thank.

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Table 1. *X-ray data**

	AlP		GaP		InP	
hkl	I_o	$I_c \times 10^{-3}$	I_o	$I_c \times 10^{-3}$	I_o	$I_c \times 10^{-3}$
111	*vvs*	866	*vs*	2,933	*vs*	8,952
200	—	3	*vvw*	399	*ms* to *w*	2,236
220	*vs*	568	*s*	1,688	*s*	4,931
311	*s*	339	*ms*	1,136	*s*	4,040
222	—	53	—	138	*vw*	684
400	*vw*	88	*vvw*	281	*w*	791
331	*ms*	136	*w*	442	*ms*	1,606
420	—	<1	—	104	*w*	778
422	*ms*	250	*w*	604	*ms*	1,694
511+333	*w*	83+28	*vs*	281+94	*ms*	939+313
440	*vvw*	72	*vww*	225	*w*	579
531	*ms*	146	*w*	523	*ms*	1,488
600+442	—	0+44	—	17+111	*w*	98+436
620	*ms*	157	*w*	520	*ms*	1,089
533	*vw*	95	*vw*	351	*w*	777
622	—	64	—	160	*vw*	471
444	*w*	143	*vvw*	425	*vvw*	459
711+551					*ms*	1,081+1,081
640					*vvw*	627
642					*s*	6,040

(*v* = very; *s* = strong; *w* = weak; *m* = moderately).

* The lattice constants are, in the order: AlP $a_0 = 5{\cdot}451 \pm 0{\cdot}004$ Å (present determination. Cf. White & Bushey, 1944); GaP $a_0 = 5{\cdot}4505$ Å and InP $a_0 = 5{\cdot}8687$ Å (Giesecke & Pfister, 1958).