

1. INTRODUCTION TO SPACE-GROUP SYMMETRY

**Table 1.6.4.16**

Reflection conditions and possible space groups with Bravais lattice  $tI$  and Laue class  $4/mmm$ ;  $hk$  are permutable; Patterson symmetry  $I4/mmm$

Reflection conditions							Space group	No.	Space group	No.	Space group	No.
$hkl$	$hk0$	$0kl$	$h \pm hl$	$00l$	$h00$	$h \pm h0$						
$h+k+l$	$h+k$	$k+l$	$l$	$l$	$h$		<b>I422</b>	97	$I4mm$	107	$I\bar{4}m2$	119
							$I\bar{4}2m$	121	$I4/mmm$	139		
$h+k+l$	$h+k$	$k+l$	$l$	$l=4n$	$h$		<b>I4<sub>1</sub>22</b>	98				
$h+k+l$	$h+k$	$k+l$	$2h+l=4n$	$l=4n$	$h$	$h$	$I4_1md$	109	$I\bar{4}2d$	122		
$h+k+l$	$h+k$	$k, l$	$l$	$l$	$h$		$I4cm$	108	$I\bar{4}c2$	120	$I4/mcm$	140
$h+k+l$	$h+k$	$k, l$	$2h+l=4n$	$l=4n$	$h$	$h$	$I4_1cd$	110				
$h+k+l$	$h, k$	$k+l$	$2h+l=4n$	$l=4n$	$h$	$h$	$I4_1/amd$	141				
$h+k+l$	$h, k$	$k, l$	$2h+l=4n$	$l=4n$	$h$	$h$	$I4_1/acd$	142				

**Table 1.6.4.17**

Reflection conditions and possible space groups with Bravais lattice  $hP$  and Laue class  $\bar{3}$ ;  $hki$  are permutable; Patterson symmetry  $P\bar{3}$

Reflection conditions			Space group	No.	Space group	No.
$hh\bar{2}hl$	$h\bar{h}0l$	$000l$				
			<b>P3</b>	143	$P\bar{3}$	147
		$l=3n$	<b>P3<sub>1</sub></b>	144	<b>P3<sub>2</sub></b>	145

**Table 1.6.4.18**

Reflection conditions and possible space groups with Bravais lattice  $hP$  and Laue classes  $\bar{3}1m$  and  $\bar{3}m1$ ;  $hki$  are permutable; Patterson symmetry  $P\bar{3}1m$  and  $P\bar{3}m1$

Reflection conditions			Class $\bar{3}1m$		Class $\bar{3}m1$	
$hh\bar{2}hl$	$h\bar{h}0l$	$000l$	Space group	No.	Space group	No.
			<b>P312</b>	149	<b>P321</b>	150
			$P31m$	157	$P3m1$	156
			$P\bar{3}1m$	162	$P\bar{3}m1$	164
		$l=3n$	<b>P3<sub>1</sub>12</b>	151	<b>P3<sub>1</sub>21</b>	152
			<b>P3<sub>2</sub>12</b>	153	<b>P3<sub>2</sub>21</b>	154
$l$		$l$	$P31c$	159		
			$P\bar{3}1c$	163		
	$l$	$l$			$P3c1$	158
					$P\bar{3}c1$	165

**Table 1.6.4.19**

Reflection conditions and possible space groups with Bravais lattice  $hP$  and Laue class  $6/m$ ;  $hki$  are permutable; Patterson symmetry  $P6/m$

Reflection conditions			Space group	No.	Space group	No.	Space group	No.
$hh\bar{2}hl$	$h\bar{h}0l$	$000l$						
			<b>P6</b>	168	$P\bar{6}$	174	$P6/m$	175
		$l$	<b>P6<sub>3</sub></b>	173	$P6_3/m$	176		
		$l=3n$	<b>P6<sub>2</sub></b>	171	<b>P6<sub>4</sub></b>	172		
		$l=6n$	<b>P6<sub>1</sub></b>	169	<b>P6<sub>5</sub></b>	170		