Table to Supplement "Wallpaper Patterns from Looping Strands: The Layer Groups"

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In this key to the layer groups, we list the group number and name assigned by the International Union of Crystallographers. Then we connect the group to the name of the associated wallpaper group, color group pair, or group product structure, as explained in the article.

When a single group name appears, the layer group is the trivial extension of the wallpaper group to 3-space. When a pair of groups is listed, the first group is the set of transformations that are restrictions to the plane of all elements of the group; these can either reverse or preserve the transverse direction. The second is the set of transformations of the plane that are restrictions to the plane of elements that leave the transverse direction unchanged. The product structure is shown when the 3D crystallographic group is a mirror extension of the wallpaper group.

Table 1: *A key to the layer groups, part 1: monoclinic lattice*

Lattice	Group #	IUC Symbol	Wallpaper group interpretation
Triclinic/Oblique	1	p1	p1
	2	p$\bar{1}$	p2/p1
Monoclinic/Oblique	3	p112	p2
	4	p11m	p1$\times\mathbb{Z}_2$
	5	p11a	p1/p1
	6	p112/m	p2$\times\mathbb{Z}_2$
	7	p112/a	p2/p2
Monoclinic/Rectangular	8	p211	pm/p1
	9	p$2_1$11	pg/p1
	10	c211	cm/p1
	11	pm11	pm
	12	pb11	pg
	13	cm11	cm
	14	p2/m11	pmm/pm
	15	p2_1/m11	pmg/pm
	16	p2/b11	pgg/pg
	17	p21/b11	pmg/pg
	18	c2/m11	cmm/cm

Table 2: *A key to the layer groups, part 2: orthorhombic lattice*

Lattice	Group #	IUC Symbol	Wallpaper group interpretation
Orthorhombic/Rectangular	19	p222	pmm/p2
	20	$p2_122$	pmg/p2
	21	$p2_12_12$	pgg/p2
	22	c222	cmm/p2
	23	pmm2	pmm
	24	pma2	pmg
	25	pba2	pgg
	26	cmm2	cmm
	27	pm2m	pm×$\mathbb{Z}_2$
	28	$pm2_1b$	$(pm/pm)_1$ or pm/pm(m)
	29	$pb2_1m$	pg×$\mathbb{Z}_2$
	30	pb2b	pm/pg
	31	pm2a	$(pm/pm)_2$ or pm/pm(m')
	32	$pm2_1n$	pm/cm
	33	$pb2_1a$	pg/pg
	34	pb2n	cm/pg
	35	cm2m	cm×$\mathbb{Z}_2$
	36	cm2a	pm/cm
	37	pmmm	pmm×$\mathbb{Z}_2$
	38	pmaa	pmm/pmg
	39	pban	cmm/pgg
	40	pmam	pmg×$\mathbb{Z}_2$
	41	pmma	pmm/pmm
	42	pman	cmm/pmg
	43	pbaa	pmg/pgg
	44	pbam	pgg×$\mathbb{Z}_2$
	45	pbma	pmg/pmg
	46	pmmn	cmm/pmm
	47	cmmm	cmm×$\mathbb{Z}_2$
	48	cmme	pmm/cmm

Table 3: *A key to the layer groups, part 3: lattices with higher symmetry*

Lattice	Group #	IUC Symbol	Wallpaper group interpretation
Tetragonal	49	p4	p4
	50	p$\bar{4}$	p4/p2
	51	p4/m	p4×$\mathbb{Z}_2$
	52	p4/n	p4/p4
	53	p422	p4m/p4
	54	p42$_1$2	p4g/p4
	55	p4mm	p4m
	56	p4bm	p4g
	57	p$\bar{4}$2m	p4m/cmm
	58	p$\bar{4}$2$_1$m	p4g/cmm
	59	p$\bar{4}$m2	p4m/pmm
	60	p$\bar{4}$b2	p4g/pgg
	61	p4/mmm	p4m×$\mathbb{Z}_2$
	62	p4/nbm	p4m/p4g
	63	p4/mbm	p4g×$\mathbb{Z}_2$
	64	p4/nmm	p4m/p4m
Trigonal/Hexagonal	65	p3	p3
	66	p$\bar{3}$	p6/p3
	67	p312	p3m1/p3
	68	p321	p31m/p3
	69	p3m1	p3m1
	70	p31m	p31m
	71	p$\bar{3}$1m	p6m/p31m
	72	p$\bar{3}$m1	p6m/p3m1
	73	p6	p6
	74	p$\bar{6}$	p3×$\mathbb{Z}_2$
	75	p6/m	p6×$\mathbb{Z}_2$
	76	p622	p6m/p6
	77	p6mm	p6m
	78	p$\bar{6}$m2	p3m1×$\mathbb{Z}_2$
	79	p$\bar{6}$2m	p31m×$\mathbb{Z}_2$
	80	p6/mmm	p6m×$\mathbb{Z}_2$