

9.2. REDUCED BASES

Table 9.2.5.1. The parameters $D = \mathbf{b} \cdot \mathbf{c}$, $E = \mathbf{a} \cdot \mathbf{c}$ and $F = \mathbf{a} \cdot \mathbf{b}$ of the 44 lattice characters ($A = \mathbf{a} \cdot \mathbf{a}$, $B = \mathbf{b} \cdot \mathbf{b}$, $C = \mathbf{c} \cdot \mathbf{c}$)

The character of a lattice given by its reduced form (9.2.2.1) is the first one that agrees when the 44 entries are compared with that reduced form in the sequence given below (suggested by Gruber). Such a logical order is not always obeyed by the widely used character numbers (first column), which therefore show some reversals, e.g. 4 and 5.

No.	Type	D	E	F	Lattice symmetry	Bravais type‡	Transformation to a conventional basis (cf. Table 9.2.5.2, footnote **)
$A = B = C$							
1	I	$A/2$	$A/2$	$A/2$	Cubic	cF	$1\bar{1}1/1\bar{1}\bar{1}/111$
2	I	D	D	D	Rhombohedral	hR	$1\bar{1}0/\bar{1}01/\bar{1}\bar{1}\bar{1}$
3	II	0	0	0	Cubic	cP	$100/010/001$
5	II	$-A/3$	$-A/3$	$-A/3$	Cubic	cI	$101/110/011$
4	II	D	D	D	Rhombohedral	hR	$1\bar{1}0/\bar{1}01/\bar{1}\bar{1}\bar{1}$
6	II	D^*	D	F	Tetragonal	tI	$011/101/110$
7	II	D^*	E	E	Tetragonal	tI	$101/110/011$
8	II	D^*	E	F	Orthorhombic	oI	$1\bar{1}0/\bar{1}0\bar{1}/0\bar{1}\bar{1}$
$A = B$, no conditions on C							
9	I	$A/2$	$A/2$	$A/2$	Rhombohedral	hR	$100/\bar{1}10/\bar{1}\bar{1}3$
10	I	D	D	F	Monoclinic	mC	$110/\bar{1}\bar{1}0/00\bar{1}$
11	II	0	0	0	Tetragonal	tP	$100/010/001$
12	II	0	0	$-A/2$	Hexagonal	hP	$100/010/001$
13	II	0	0	F	Orthorhombic	oC	$110/\bar{1}10/001$
15	II	$-A/2$	$-A/2$	0	Tetragonal	tI	$100/010/112$
16	II	D^*	D	F	Orthorhombic	oF	$1\bar{1}0/\bar{1}10/112$
14	II	D	D	F	Monoclinic	mC	$110/\bar{1}10/001$
17	II	D^*	E	F	Monoclinic	mC	$1\bar{1}0/110/\bar{1}0\bar{1}$
$B = C$, no conditions on A							
18	I	$A/4$	$A/2$	$A/2$	Tetragonal	tI	$0\bar{1}1/\bar{1}\bar{1}\bar{1}/100$
19	I	D	$A/2$	$A/2$	Orthorhombic	oI	$1\bar{1}0/\bar{0}\bar{1}\bar{1}/\bar{1}11$
20	I	D	E	E	Monoclinic	mC	$011/01\bar{1}/\bar{1}00$
21	II	0	0	0	Tetragonal	tP	$010/001/100$
22	II	$-B/2$	0	0	Hexagonal	hP	$010/001/100$
23	II	D	0	0	Orthorhombic	oC	$011/\bar{0}\bar{1}\bar{1}/100$
24	II	D^*	$-A/3$	$-A/3$	Rhombohedral	hR	$121/\bar{0}\bar{1}\bar{1}/100$
25	II	D	E	E	Monoclinic	mC	$011/\bar{0}\bar{1}\bar{1}/100$
No conditions on A, B, C							
26	I	$A/4$	$A/2$	$A/2$	Orthorhombic	oF	$100/\bar{1}20/\bar{1}02$
27	I	D	$A/2$	$A/2$	Monoclinic	mC	$\bar{1}20/\bar{1}00/0\bar{1}\bar{1}$
28	I	D	$A/2$	$2D$	Monoclinic	mC	$\bar{1}00/\bar{1}02/010$
29	I	D	$2D$	$A/2$	Monoclinic	mC	$100/\bar{1}20/00\bar{1}$
30	I	$B/2$	E	$2E$	Monoclinic	mC	$010/01\bar{2}/\bar{1}00$
31	I	D	E	F	Triclinic	aP	$100/010/001$
32	II	0	0	0	Orthorhombic	oP	$100/010/001$
40	II	$-B/2$	0	0	Orthorhombic	oC	$0\bar{1}0/012/\bar{1}00$
35	II	D	0	0	Monoclinic	mP	$0\bar{1}0/\bar{1}00/00\bar{1}$
36	II	0	$-A/2$	0	Orthorhombic	oC	$100/\bar{1}0\bar{2}/010$
33	II	0	E	0	Monoclinic	mP	$100/010/001$
38	II	0	0	$-A/2$	Orthorhombic	oC	$\bar{1}00/120/00\bar{1}$
34	II	0	0	F	Monoclinic	mP	$\bar{1}00/00\bar{1}/0\bar{1}0$
42	II	$-B/2$	$-A/2$	0	Orthorhombic	oI	$\bar{1}00/0\bar{1}0/112$
41	II	$-B/2$	E	0	Monoclinic	mC	$0\bar{1}\bar{2}/0\bar{1}0/\bar{1}00$
37	II	D	$-A/2$	0	Monoclinic	mC	$102/100/010$
39	II	D	0	$-A/2$	Monoclinic	mC	$\bar{1}\bar{2}0/\bar{1}00/00\bar{1}$
43	II	D^\dagger	E	F	Monoclinic	mI	$\bar{1}00/\bar{1}\bar{1}\bar{2}/0\bar{1}0$
44	II	D	E	F	Triclinic	aP	$100/010/001$

* $2|D + E + F| = A + B$.

† As footnote * plus $|2D + F| = B$.

‡ For symbols for Bravais types see footnote * to Table 9.1.7.1 and de Wolff *et al.* (1985). The capital letter of the symbols in this column indicates the centring type of the cell as obtained by the transformation in the last column. For this reason, the standard symbols mS and oS are not used here.