

## **BUREAU OF INDIAN STANDARDS**

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**भारतीय मानक मसौदा**  
**भूवैज्ञानिक मानचित्रों, अनुभागों और उपसतही खोजी लॉग में उपयोग के लिए**  
**चिह्न और संक्षिप्ताक्षर**  
**भाग 1 संकेताक्षर**

*(IS 7422 भाग 1 का पहला पुनरीक्षण)*

***Draft Indian Standard***

### **SYMBOLS AND ABBREVIATIONS FOR USE IN GEOLOGICAL MAPS, SECTIONS AND SUBSURFACE EXPLORATORY LOGS**

#### **PART 1 ABBREVIATIONS**

*(First Revision of IS 7422 Part 1)*

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**Geological Investigation and Subsurface  
Exploration Sectional Committee, WRD 05**

**Last date for comments: 05  
Feb 2023**

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#### **FOREWORD** *(Formal Clause will be added later)*

In all spheres of engineering construction, data on the nature of the geological formations constituting the foundations are indispensable. Often, these data are given on maps or in geological sections using symbols and abbreviations. Geological maps and, sections are also required for other activities, such as mining and mineral prospecting. Such maps and sections are therefore being prepared by various agencies in the country. In the absence of any standard for the guidance of the engineering geologist or engineers, different symbols and abbreviations are being used by different agencies, resulting in entirely different representation of the same geological data. The data collected and presented by one agency for a particular purpose are often useful to other agencies investigating for related work. It, therefore, becomes essential for all agencies to follow the uniform practice.

This standard (Part 1) deals with abbreviations for use in geological maps, sections and subsurface exploratory logs while other parts are as follows:

Part 2 Igneous rocks

Part 3 Sedimentary rocks

Part 4 Metamorphic rocks

Part 5 Line symbols for formation contacts and structural - Feature

The standard was published in 1974. The first revision of this standard has been brought out to bring the standard in latest style and update with respect to the latest field practices. In revision of this standard, due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country. In this first revision of standard, assistance have been derived from different parts of ISO 710 'Graphical symbol for use on detailed maps, plans and geological cross section'.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 2022 '*Rounding off numerical values (Second revised)*'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**Draft Indian Standard****SYMBOLS AND ABBREVIATIONS FOR USE IN GEOLOGICAL MAPS, SECTIONS  
AND SUBSURFACE EXPLORATORY LOGS****PART 1 ABBREVIATIONS***(First Revision of IS 7422 Part 1)***Geological Investigation and Subsurface  
Exploration Sectional Committee, WRD 05****Last date for comments:  
05 Feb 2023****1 SCOPE**

This standard (Part 1) gives abbreviations to be used for describing stratigraphic divisions, geological features and minerals for use in geological maps, sections and logs of bore holes, test pits, exploratory drifts and shafts.

**2 ABBREVIATIONS**

**2.1** Abbreviations to be used for describing stratigraphic divisions on geological maps and sections are given in Table 1.

**TABLE 1 ABBREVIATIONS FOR DESCRIBING STRATIGRAPHIC DIVISIONS**  
*(Clause 2.1)*

<b>SI No.</b>	<b>AGE (ERA)</b>	<b>ABBREVIATION</b>
(i)	(ii)	(iii)
1	Cenozoic	CZ
2	Quaternary	Q
3	Tertiary	TT
4	Neogene	N
5	Palaeogene	Pze
6	Mesozoic undifferentiated	MZ
7	Cretaceous	K
8	Jurassic	J
9	Triassic	T
10	Palaeozoic undifferentiated	PZ
11	Permian	Perm
12	carboniferous	Carb
13	Devonian	D
14	Silurian	S
15	Ordovician	O
16	Cambrian	Cm

17	Pre Cambrian	A
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**2.2** Where necessary, the abbreviations given in Table 2 should be used for describing geological features in drill-hole logs and geological sections.

**2.3 Abbreviations for Minerals** — Abbreviations for minerals given in Table 3 may be used for better characterization of rocks on geological maps and logs.

**2.3.1** The mineral abbreviations should be in small letters, with the exception of chemical elements of which the first letter is a capital. In those cases, where letters are also used for designation of other rock characteristics, the abbreviations for minerals should be marked in a special way (for example, by choosing a different type of writing or by framing the abbreviations). The marking should be précised in a key. If the occurrence of several minerals in the same rock is to be indicated by letters, the abbreviations should be listed in the range of importance of the minerals. The most frequent mineral should be placed on top.

### **2.3.2 Graphic Symbols for Important Minerals**

**2.3.2.1** The representation of minerals may be necessary for better characterization of certain rocks. In principle there are two possibilities to represent these minerals in the symbols for rocks as *given* below:

- a) By adding an additional symbol characterizing the mineral to the elementary symbol of the rock in question (given in Table 4).
- b) By inscription of letters in the symbol of the rock (given in Table 3).

**2.3.2.2** It is impossible to fix symbols for existent all minerals. Symbols for some of the common rock-forming minerals are given in Table 4.

**TABLE 2 ABBREVIATIONS FOR DESCRIBING GEOLOGICAL FEATURE IN LOGS AND SECTIONS**  
(Clause 2.2)

SI No.	FEATURE	ABBREVIATION
(i)	(ii)	(iii)
1	altered	altd
2	alternating	alt
3	angular	ang
4	auger hole	AH
5	bedded	bdd
6	bedding plane	bdg.pl
7	bedrock	BR
8	bore hole	BH
9	bottom	bot

10	boulders	bldrs
11	brecciated	brec
12	calcareous (limey)	calc
13	calyx hole	CXH
14	carbonaceous	carb
15	cavity	cav
16	chert	ch
17	churn drill hole	CDH
18	clay	cl
19	clay-filled	cl.fd
20	coarse	c
21	coarse-grained	c.gr
22	compact	compt
23	conglomerate	cgl
24	consolidated	consol
25	contact	cont
26	core hole	CH
27	cross bedding	c.bdg
28	crystalline	x-lline
29	dark	dk
30	drill hole	DH
31	drive sample hole	DSH
32	fine	f
33	fine grained	f.gr
34	fishtailed hole	FH
35	fissile	fis
36	formation	fm
37	fracture	frac
38	fragment	frag
39	friable	fri
40	granular	gran
41	gravel	grav
42	ground water	GW
43	ground water table	GWT
44	hard	hd
45	heavily	hly
46	horizontal	horiz
47	igneous	ig
48	impervious	impv
49	indurated	ind
50	interbedded	interb
51	joint	jt
52	laminated	lam
53	light	lt
54	limestone	lst

55	massive	masv
56	medium	m or med
57	medium-grained	m.gr
58	metamorphic	metc
59	micaceous	mic
60	mineralized	mrlld
61	mixture	mixt
62	moderately	mod
63	mottled	motld
64	non-slaking	non-slkg
65	occasional	occ
66	outcrop	otc
67	overburden	ob
68	pervious	perv
69	plastic	plas
70	porous	por
71	quartz	qtz
72	quartzite	qzt
73	reddish	red
74	rounded	rdd
75	sand	sd
76	Sand stone	sst
77	sandy	sdv
78	sedimentary	sed
79	shaft	S
80	shale	sh
81	shaly	shy
82	sheared	shd
83	siliceous	silic
84	silt	st
85	Silt stone	slst
86	silty	sty
87	sink-hole	SH
88	slaking	slkg
89	slate	sl
90	solution channel	sol. can
91	specimen	spec
92	speckled	specd
93	sticky	stky
94	sub-angular	subang
95	sub-rounded	subrdd
96	test pit	TP
97	trench	T
98	tunnel	Tun
99	unconformity	unconf

100	unconsolidated	uncons
101	vertical	vert
102	very coarse	v.c
103	very fine	v.f
104	Wash boring	WB
105	water table	WT

**TABLE 3 ABBREVIATIONS FOR MINERALS**  
[Clauses 2.3 and 2.3.2.1 (b)]

<b>Sl. No.</b>	<b>MINERAL</b>	<b>SYMBOL</b>
(i)	(ii)	(iii)
1	Actinolite	ak
2	Aegirine	ae
3	Albite	ab
4	Almandine	al
5	Alunite	at
6	Amphibole	am
7	Andalusite	ad
8	Anhydrite	ah
9	Anorthite	an
10	Anthophyllite	ay
11	Apatite	ap
12	Arsenopyrite	ar
13	Asbestos	as
14	Augite	au
15	Axinite	ax
16	Barite	ba
17	Beryl	be
18	Biotite	bi
19	Bismuthinite	bs
20	Calcite	cc
21	Cancrinite	ca
22	Carnallite	ct
23	Cassiterite	cs
24	Cerussite	ce
25	Chalcedony	cn
26	Chalcopyrite	cp
27	Chlorite	ch
28	Chromite	cr
29	Cinnabar	hg
30	Cobaltite	cb
31	Columbite	cl
32	Cordierite	co
33	Corundum	ko

34	Datolite	da
35	Desmine	dn
36	Diallage	dl
37	Diamond	dm
38	Dickite	dt
39	Diopside	di
40	Dolomite	do
41	Epidote	ep
42	Feldspar	f
43	Fireclay	fc
44	Fluorite	fl
45	Galena	ga
46	Garnet	gr
47	Glauconite	gk
48	Glaucophane	gp
49	Gold (Native)	Au
50	Graphite	gf
51	Gypsum	g
52	Haematite	hm
53	Halite, Rock salt	na
54	Hornblende	h
55	Hypersthene	hy
56	Ilite	it
57	Ilmenite	il
58	Jarosite	jr
59	Jadeite	jd
60	Kaolinite	kl
61	Kyanite	ky
62	Lepidolite	le
63	Leptochlorite	lt
64	Leucite	lc
65	Limonite	lm
66	Magnetite	mt
67	Marcasite	ma
68	Mica	mi
69	Microcline	mk
70	Molybdenite	mo
71	Monazite	Mz
72	Montmorillonite	mm
73	Muscovite	mu
74	Nacrite	nk
75	Nepheline	ne
76	Nontronite	nt
77	Olivine	ov
78	Orthite	ot



79	Orthoclase	or
80	Ozokerite	oz
81	Perovskite	pw
82	Phlogopite	pl
83	Plagioclase	pg
84	Platinum (Native)	Pt
85	Pyrite	p
86	Pyrochlore	pc
87	Pyroxene	pz
88	Pyrope	po
89	Purokene	py
90	Pyrrhotite	pn
91	Quartz	q
92	Rhodochrosite	ro
93	Rutile	ru
94	Scapolite	sk
95	Scheelite	sh
96	Scorodite	so
97	Sericite	sc
98	Serpentine	se
99	Siderite	si
100	Sillimanite	sl
101	Silver (Native)	Ag
102	Spessartine	sn
103	Sphalerite	zn
104	Spinel	Sp
105	Spodumene	sd
106	Staurolite	st
107	Stibnite	sb
108	Sulphur	S
109	Sylvine	sy
110	Talc	tk
111	Titanite, Sphene	ti
112	Titanomagnetite	tm
113	Topaz	to
114	Tourmaline	tu
115	Tremolite	tr
116	Vanadinite	va
117	Vesuvianite	vs
118	Wolframite	w
119	Wollastonite	wo
120	Zeolite	ze
121	Zinnwaldite	z
122	Zircon	zr

**TABLE 4 SYMBOLS FOR SOME COMMON ROCK-FORMING MINERALS**  
 [Clauses 2.3.2.1 (a) and 2.3.2.2]

MINERAL	SYMBOL
Albite	
Amphibole	
Andalusite	
Biotite	
Calcite	
Chlorite	
Cordierite	
Epidote	
Feldspar	
Garnet	
Glauconite	
Graphite	
Hypersthene	

MINERAL	SYMBOL
Kyanite	
Magnetite	
Muscovite	
Olivine	
Phosphorite	
Plagioclase	
Pyrite	
Pyroxene	
Quartz	
Sillimanite	
Staurolite	
Tourmaline	