



# **SIPA RESOURCES LIMITED**

**ABN 26 009 448 980**

## **SIPA CODING SYSTEM**

- ◆ **Coding Conventions**
  - **Drilling Data**
  - **Surface Sample Data**
- ◆ **Geological Reference**

## DRILLING DATA

### COLLAR DATA (\*COL\*.txt)

HOLE	drill hole no.
SOURCE	source of data, eg: <i>Sipa</i> <i>Open file data I10515 A54750 - 1997 Annual Report</i> <i>Golden Cross email</i> <i>Newcrest CD</i> <i>AGSO</i>
COMPNY/GEO	if SOURCE = <i>Sipa</i> , then name of geologist who logged the drill hole if SOURCE ≠ <i>Sipa</i> , then name of exploration company who collected the data
PROSPECT	prospect name
TENEMENT	if SOURCE = <i>Sipa</i> , then the current tenement number at the time of sampling is recorded if SOURCE ≠ <i>Sipa</i> , then the current tenement number at the time of entry into the database is recorded
MAP250NAME	name of 250K map sheet
MAP250NO	number of 250K map sheet
MAP100NAME	name of 100K map sheet
MAP100NO	number of 100K map sheet
LAT_GDA	Latitude in GDA94/WGS84
LONG_GDA	Longitude in GDA94/WGS84
ZONE	UTM projection zone
MGAE	Easting recorded in metres in GDA94/WGS84
MGAN	Northing recorded in metres in GDA94/WGS84
AMGE	Easting recorded in metres in AGD66 or AGD84
AMGN	Northing recorded in metres in AGD66 or AGD84
LOCAL_E	Easting recorded in metres in local grid coordinates (if applicable)
LOCAL_N	Northing recorded in metres in local grid coordinates (if applicable)
RL	relative level of drill collar
ORIG_COORD	coordinate system in which the original data has been recorded: MGA(+Zone) eg <i>MGA51</i> AMG(+Zone) eg <i>AMG51</i> LGRD Local grid GEOG Geographic grid (Lat/Long)
LOC_METHOD	location method of collar coordinates and accuracy of method used: AP Assumed position, real position unknown; see also COMMENTS DG Differential GPS DP Digitized from hard copy plans ES Estimated; estimation method not specified GS Surveyed grid IP Interpolated between known points NG Navigational GPS OP Orthophoto PS Surveyed planned position RG Real time kinematic GPS SM Estimated from standard issue map SV Surveyed; details unknown TC Tape and compass TD Theodolite XG Unspecified GPS XX Unknown
RL_METHOD	method and accuracy used, same codes as for LOC_METHOD

DRILL_TYPE	drilling method, as follows: DD Diamond RC Reverse circulation OP Open hole percussion XP Percussion (details not specified) RAB Rotary air blast OH Open hole (non-percussion) AC Aircore WB Water bore AUG Auger with more than one sampled interval (if only one sample, it is treated as a surface sample) CO Costean/trench TRAV Rock chip traverse VAC Vacuum XX Unspecified with two drilling methods separated by a ' _ ', eg <i>RC_DD</i> indicates an RC precollared diamond hole
TOTAL_DTH	total depth of drill hole in metres
BCI	depth of <u>C</u> over- <u>B</u> edrock <u>I</u> nterface in metres
BASE_TL_OX	depth of base of total oxidation in metres, generally coincides with upper saprolite-lower saprolite interface
BASE_PL_OX	depth of base of partial oxidation in metres, generally coincides with saprock-bedrock interface
WATER_TBL	depth of water table in metres
DATE_COMP	date drilling ended (dd/mm/yyyy)
AZIM_UTM	UTM drill hole azimuth at collar
DIP	drill hole dip at collar in degrees (eg -90 for vertical holes)

### DRILLING DATA (\*DRI\*.txt)

HOLE	drill hole no.
FROM	start depth of drilling type in metres
TO	end depth of drilling type in metres
DRILL_TYPE	drilling method, same codes as for DRILL_TYPE in COLLAR DATA file
BIT_TYPE	drill bit type, eg: BL Blade CH Conventional hammer FH Face hammer RL Roller XX Unknown
BIT SIZE	for core: <i>NQ, NQ2, HQ3, NQ_HQ</i> , etc for non-core: in <i>inches</i> or <i>mm</i>
DIAM_UNITS	bit diameter units
NON_CR_DTH	total depth of non-core drilling in metres
CASING	casing depth ± type, eg <i>6m PVC</i>
DATE_FROM	date drilling type started (dd/mm/yyyy)
DATE_TO	date drilling type ended (dd/mm/yyyy)
DRILL_COMPNY	name of drilling company (eg <i>Challenge Drilling</i> )
RIG	drill rig (eg <i>Longyear 44</i> )

### SURVEY (DOWNHOLE) DATA (\*SUR\*.txt)

HOLE	drill hole no.
DEPTH	depth of survey in metres
DIP	drill hole dip in degrees (eg -90 for vertical holes)
DIP_REL	dip reliability, eg: 0 not reliable 1 reliable as method used allows (this includes vertical holes) E estimated

	S	assumed values of above reading; used for dip only downhole surveys
	C	calculated from readings above and below; used for dip only downhole surveys
AZIM		original drill hole azimuth; for vertical holes use 0
AZIM_TYPE		original azimuth type, eg:
	MAG	magnetic azimuth
	LOC	local grid azimuth
	UTM	UTM grid azimuth
	VER	vertical hole azimuth (=0)
AZIM_REL		azimuth reliability, same codes as for DIP_REL
UTM_ADJUST		angle to add to original azimuth to obtain the UTM azimuth, eg 0 for vertical holes and blank, if UTM azimuth recorded originally
SURVEY_METH		method of downhole survey:
	CG	Conventional gyroscope
	CO	Compass and/or clinometer
	ES	Estimated
	MB	Maxi bore
	MC	Multi shot camera
	NG	North seeking gyroscope
	RS	Nominal survey (rig setup commonly based on surface grid)
	SC	Single shot camera
	SS	Single shot electronic camera
	XG	Gyroscope (details unknown)
	XX	Unknown/not specified
ROD_TYPE		type of drill rods used during downhole survey:
	CR	Conventional (magnetic) rods
	DD	Conventional diamond drilling
	OH	Open hole
	SR	Stainless steel rods
	XX	Unknown/not specified
		Note: Left blank for unsurveyed holes

#### ASSAY DATA (\*ASS\*.txt)

HOLE		drill hole no.
SAMPLE		sample number
FROM		start of sample interval
TO		end of sample interval
SMP_METHOD		sampling method, eg:
	CC	Chip core
	CP	Laboratory composite during sample prep
	CS	Cone splitter
	CU	Laboratory composite of pulps
	DS	Dry splitter
	FC	Fillet core
	GB	Grab
	HC	Half core
	QC	Quarter core
	SP	Spear
	SR	see COMMENTS
	TW	Trowel, scoop
	WC	Whole core
	WS	Wet splitter
	XS	Splitter (details unknown)
	XX	Unknown
SMP_STATUS		sample status, records intervals which have not been sampled:
	DIP	Destroyed in preparation
	IS	Insufficient sample
	NA	Not analysed
	NS	No sample (no recovery)
	PS	Polished section
	PTS	Polished thin section
	SNR	Sample not received
	TS	Thin section
	UR	Unreliable result; not resampled
	XX	Unknown; no result reported/available

SAMPLE_QC		sample hierarchy:
	0	Original sample
	1	First repeat/duplicate sample
	2	Second repeat/duplicate sample
	3	Third repeat/duplicate sample
	B	Check assay prior to using bulk sample as blank
	M	Submitted for analysis by mistake
	R	Resample over different interval
	S	Selective sample
	U	Unreliable sample/unreliable result
SUBSAMPLE		records if original sample interval has been subsampled:
	N	sample has not been subsampled, relates to Y
	X	Only part of sample interval has been subsampled (preference given to original sample interval), relates to Z
	Y	Whole sample has been subsampled, relates to N
	Z	Subsample of X which has not been further subsampled
SDAN		<u>S</u> ample <u>D</u> espatch <u>A</u> dvice <u>N</u> o.
SAMPLE_TAG		same as SAMPLE except for lab repeats, when the sample no. will be suffixed 'rpt'
FRACTION		fraction of the sample if appropriate
QC_TYPE		analysis hierarchy:
	ROUTINE	original analysis
	CHECK	lab check
	SPLIT	analysis of sample split
	REJECT	analysis of reject portion of sample
	STANDARD	analysis of standard

#### LITHOLOGICAL DATA (\*GEO\*.txt)

(refer to the Geological Reference for appropriate geological codes)

HOLE		drill hole no.
FROM		start of lithological unit
TO		end of lithological unit
COLOUR1		primary colour } up to 3 colours can be used
COLOUR2		secondary colour } for each
WEATH		weathering:
	sw	strongly weathered
	mw	moderately weathered
	ww	weakly weathered
	fr	fresh
LITH1		main lithology } up to 4 character codes (5 for
LITH2		secondary lithology } all saprolite/saprock codes) in
		} upper case letters, '#' can be
		} used to indicate uncertainty
Q1, Q2, Q3, Q4		fabric, textural, mineral and structural qualifiers (atypical or distinctive) relating to the main lithology
Q5, Q6		qualifiers relating to the secondary lithology
RELN		relationship between the main lithology and the secondary lithology:
	+	and, or hosted by
	/	over, or after, or derived from, or interpreted as
	-	transitional
	=	or
	c	clast lithology

#### ALTERATION DATA (\*ALT\*.txt)

HOLE		drill hole no.
FROM		start of altered interval
TO		end of altered interval
INTENSITY		overall alteration intensity:
	w	weakly altered
	m	moderately altered
	s	strongly altered

	u	uncertain		a	abundant (>50%)
STYLE	overall style of alteration:		V1_STYLE, V2_STYLE	The style of veining - see Qualifiers in the Geological Reference; common veining styles are:	
	pv	pervasive		bc	bucky
	pj	patchy/blotchy		dy	drusy
	vn	vein		ee	en echelon
	vs	selvage		ir	irregular
	ws	wispy		la	laminated
	ds	disseminated		pa	planar
MIN1, MIN2	mineral qualifiers – refer to the Geological Reference for codes; common alteration minerals are:			pt	ptygmatic
	cb	carbonate/calcareous		sv	stepped
	ch	chlorite		so	stockwork
	ep	epidote		st	stringer
	he	hematite		vc	concordant
	py	pyrite		vx	crosscutting
	qz	quartz		ws	wispy
	se	sericite			
	si	silicified/siliceous			

#### SULPHIDE DATA (\*SUL\*.txt)

HOLE	drill hole no.
FROM	start of sulphidic interval
TO	end of sulphidic interval
TOT_SULPC	total % of all sulphides*; if sulphide content <1%, 0.1 for rare or 0.5 for trace can be used Note: * means sulphides or any other economic or mineralisation-indicative mineral, eg ex-pyrite (xp), limonite (lm), ex-sulphide (xs)
STYLE	overall style of mineralisation – refer to Qualifiers in the Geological Reference; up to two qualifiers can be used, eg <i>dsvn</i> ; some common mineralisation styles are:
	at aggregates
	bb blebs & aggregated blebs
	bn banded
	bx breccia
	ci clastic
	ds disseminated
	fw fracture fill
	gz gossanous
	mv massive
	mx matrix sulphides
	rm remobilised
	rp replacive
	st stringer
	sg supergene
	vn veining
	vs vein selvage
	vc veining, concordant
	vx veining, crosscutting

PYPC	% of pyrite within sample interval; if pyrite content <1%, 0.1 for rare or 0.5 for trace can be used
MIN1, MIN2, MIN3	sulphide* mineral – refer to Mineral Codes in the Geological Reference
MIN1PC, MIN2PC, MIN3PC	% of individual sulphides*; if mineral content <1%, 0.1 for rare or 0.5 for trace can be used

#### VEIN DATA (\*VEI\*.txt)

HOLE	drill hole no.
FROM	start of interval with similar veining
TO	end of interval with similar veining
V1_TYPE, V2_TYPE	primary and secondary veining material – see Mineral Codes in the Geological Reference; up to two minerals can be used, eg qzcb
V1_ABUND, V2_ABUND	abundance of veining:
	r rare (<1%)
	t trace (1-2%)
	m minor (3-10%)
	c common (11-50%)

#### MAGNETIC SUSCEPTIBILITY DATA (\*MAG\*.txt)

HOLE	drill hole no.
FROM	start of measured interval
TO	end of measured interval
MAG_SUS	magnetic susceptibility reading
INSTRUMENT	name of instrument
SI_UNITS	measurement unit (eg 10p-5 as 10 to the power of - 5)

#### RECOVERY/RQD/FRACTURE DATA (\*GEOT\*.txt)

HOLE	drill hole no.
FROM	start of measured interval
TO	end of measured interval
PROPERTY	property of core being measured
VALUE	measured value of the property
RCV	recovery; metres of core recovered within the core run
HDS	hardness:
	1 very weak - can be broken by hand
	2 weak - cuts easily with knife
	3 moderately weak - difficult to cut with knife, pick indents easily
	4 moderately strong - cannot be cut with knife, pick can indent
	5 strong - requires one hammer blow to break
	6 very strong - requires several hammer blows to break
	7 cannot be broken by hammer
	Note: can have two hardnesses if applicable, separated by '/', eg ¾
GT10CM	total length of core more or equal than 10cm within the core run (in metres)
LT10CM	total length of core less than 10cm within the core run (in metres)
FRC	fractured core; if core run contains one or more zones of strongly broken core, then indicated by 'X', otherwise left blank
NFR	no. of fractures; if an interval is very broken, it is counted as one (1) fracture and FRC is marked 'X'
WTH	weathering:
	sw strongly weathered - core can be broken by hand, strong discolouring, sulphides totally oxidised
	mw moderately weathered - core cannot be broken by hand, moderate discolouring, sulphides totally oxidised

ww weakly weathered - slight discolouring,  
sulphides partially oxidised  
fr fresh - no signs of colour change,  
sulphides unoxidised

## STRUCTURAL DATA (\*STR\*.txt)

HOLE drill hole no.

FROM depth of top of discontinuity (in metres)

TO depth of bottom of zone of discontinuity, therefore only necessary where discontinuity covers a zone, eg a zone of fracturing (in metres)

TYPE discontinuity type – *refer to Qualifiers in the Geological Reference*, eg:  
be bedding  
bn banding  
bx brecciation  
fc cleavage  
cz contact  
of fault  
fo foliation  
fa fracture (includes joints)  
ss shear  
vn vein

TYPE\_SEQ sequential number for multiple observations of the same feature

ALPHA angle of discontinuity with core axis

BETA second angle of discontinuity with core axis (if orientated core)

BETA\_LOC beta angle location; whether the measurement of the B angle is from the bottom or the top of the core:  
T Top  
B Bottom

SHAPE shape of discontinuity:  
A Planar  
B Stepped  
C Wavey  
D Irregular

ROUGHNESS roughness of discontinuity:  
R Rough  
S Smooth  
P Polished  
K Slickensided

LENGTH length (not width) of discontinuity where applicable (in metres)

MIN1, MIN2, MIN3, MIN4 infilling minerals within discontinuity in order of abundance - *see Mineral Codes in the Geological Reference*

MIN1%, MIN2% percentage of MIN1 and MIN2 within discontinuity

## SURFACE SAMPLE DATA

SEE DRILL HOLE COLLAR DATA FOR: SOURCE, COMPNY/GEO, PROSPECT, TENEMENT, MAP250NAME, MAP250NO, MAP100NAME, MAP100NO, LAT\_GDA, LONG\_GDA, ZONE, MGAE, MGAN, AMGE, AMGN, LOCAL\_E, LOCAL\_N, ORIG\_COORD, LOC\_METHOD

SAMPLE sample number

LOC\_COMMENTS comments about how the sample was located

SMPLE\_DATE date sample collected (dd/mm/yyyy)

SITE\_TYPE Rock, Stream, Soil, Auger, Lag, Vegetation, XX (for Unknown)

COMP\_TYPE composite sample type:  
Point single point sample  
Line line sample  
Star star sample  
Comp'no of sample - 'sample interval'm  
(eg *Comp2-25m* describes a composite of 2 samples taken over 25m) Note: the coordinates for a composite sample are the midpoint of the sample interval

ROCK\_TYPE eg OCG:  
  
1<sup>s</sup> character: Outcrop, Float, Mullock, Drillhole  
2<sup>nd</sup> character: Chip, Grab, Sieved, Trench/Channel, RAB chips, Percussion/RC chips  
Diamond core, Air core  
3<sup>rd</sup> character: Rock, Alteration, Gossan, Pseudo-gossan, Ironstone, Laterite, Vein, Zmineralisation

REGOLITH soil sample medium (not applicable for stream samples): eg *RU*  
first character - R Residual  
T Transported  
U Unknown  
second character - A A horizon  
B B horizon  
C C horizon  
L Lag  
P Pisolites  
U Unknown  
vegetation sample medium: eg *bark, litter, leaf, seed, twig*

PREP soil or stream sample preparation:  
NS Not sieved  
DS Dry sieved  
WS Wet sieved  
DP Dry panned concentrates  
WP Wet panned concentrates  
MF Magnetic fraction  
Note: can have two types of sample preparation, eg *WSWP*

SMPLE\_SIZE sample size in mm, micron or mesh (specified as mm, u or #) or 'BULK' if whole sample sent for analysis (eg *-2mm* for fine fraction material sieved with a 2mm sieve size or *+2mm* for coarse fraction material sieved with a 2mm sieve size)

WEIGHT soil or stream sample weight in grams

DEPTH soil sample depth in metres

SEE DRILL HOLE LITHOLOGY DATA FOR: COLOUR1, COLOUR2, WEATH, LITH1, Q1, Q2, Q3, Q4 RELN, LITH2, Q5, Q6

SEE DRILL HOLE ASSAY DATA FOR: SMP\_STATUS, SAMPLE\_QC, SUBSAMPLE, SDAN, SAMPLE\_TAG, FRACTION, QC\_TYPE

# GEOLOGICAL REFERENCE

## AGE AND AGE QUALIFIERS

Lower case qualifier, upper case age (only applicable to plans and sections)

e early  
m middle  
l late

CZ Cainozoic  
MZ Mesozoic  
PZ Palaeozoic  
PC Precambrian  
Q Quaternary  
T Tertiary  
K Cretaceous  
J Jurassic  
TR Triassic  
P Permian  
C Carboniferous  
D Devonian  
S Silurian  
O Ordovician  
CM Cambrian  
PR Proterozoic  
A Archaean

## LITHCODES

Up to five upper case letters (up to five for regoliths), followed by an optional '#' (in digital database) or '?' (on plans and sections) to indicate uncertainty

### Regolith

RR residual regime  
RD depositional (*transported*) regime  
RE erosional regime  
RU unknown regime

RL laterite  
RS saprolite, unclassified  
RSU saprolite, upper  
RSL saprolite, lower  
RP saprock  
RG surficial gravel (lag)  
RK lacustrine  
RN eolian

RAS soil/loam  
RAL alluvium  
RAE eluvium  
RCL colluvium/scree  
RCC calcrete  
RCS silcrete  
RCF ferricrete  
RCM magnesite  
RCU silica cap over cumulate ultramafics

### Suffixes for regolith types

\_G gravelly  
\_S sandy  
\_L silty (*RSL can no longer be used for "silty saprolite"*)  
\_C clayey  
\_N nodular  
\_P pisolitic  
\_B bleached/pallid  
\_M mottled  
\_V vermiform  
\_F ferruginous  
\_K calcareous  
\_Q siliceous/quartzitic  
\_H hardpan  
\_I indurated  
\_W sheetwash  
\_A dune, eolian  
\_R residual  
\_D depositional (*transported*)  
\_E erosional  
\_XF after felsic  
\_XI after intermediate  
\_XM after mafic  
\_XU after ultramafic

Note: more than one suffix can be used to make a total of four characters (five characters for all saprolite/saprock codes).

### Chert

C chert, amorphous silica rock  
CJ Jaspilite/Jasperoid

CS secondary chert  
CV vein chert  
**Sedimentary rocks**  
S sedimentary rock, unclassified  
SR rudite, unclassified  
SRB breccia  
SRC conglomerate  
SA arenite (*sandstone*)  
SAA arkose  
SAW wacke  
SAQ quartz arenite (*quartzitic*)  
SL lutite (*argillite, mudstone*)  
SLT siltstone  
SLH shale

### Suffixes for above sedimentary rocks

\_E epiclastic  
\_V volcanogenic  
\_G granitoid provenance  
\_F felsic provenance  
\_I intermediate provenance  
\_M mafic provenance  
\_U ultramafic provenance

Note: up to two suffixes can be used to make a total of four characters

SCI chemical sediments (*exhalite*)  
SCE evaporitic chemical sediments  
SCB sedimentary carbonates  
SCD dolomite  
SCL limestone  
SCM marl (*incl. silty carbonates and carbonate-rich siltstones*)  
SIF banded iron formation  
SOC coal/lignite/etc  
SGT glacial sediment

### Igneous rocks

G granitoid, unclassified  
GD granodiorite  
GG granite  
GN syenite  
GM monzonite  
GT tonalite  
GAP aplite  
GPG pegmatite  
F felsic rock, unclassified  
FR rhyolite-rhyodacite  
FD dacite

I intermediate rock, unclassified  
IA andesite  
ID diorite  
IMD microdiorite

M mafic rock, unclassified  
MB basalt  
MBK komatiitic basalt  
MD dolerite  
MDL layered doleritic sill  
MG gabbroid  
MGX pyroxenitic gabbro  
MGA anorthosite

U ultramafic rock, unclassified  
UKO komatiitic rock  
UKB basaltic komatiite  
UKP peridotitic komatiite  
UD dunite  
UPD peridotite  
UPX pyroxenite  
US serpentinite  
UC talc-carbonate ultramafic  
UA talc-amphibole (actinolite/anthophyllite) ultramafic  
UR tremolite-chlorite ultramafic  
UT talc-chlorite ultramafic  
UOA adcumulate  
UOM mesocumulate  
UOO orthocumulate

### Suffixes for igneous rocks

\_V volcanic  
\_E extrusive  
\_I intrusive  
\_P porphyry  
\_Y dyke

\_S sill (*cannot be used for "U"*)  
\_BX breccia (*sedimentary texture*)  
\_AG agglomerate  
\_LT lapilli tuff  
\_AT ash tuff  
\_XT crystal tuff  
\_HC hyaloclastite  
\_PP peperite  
\_M magnesian  
\_T tholeiitic } *cannot be used*  
\_C calc-alkaline } *for IA*

Note: above suffixes cannot be used for granitic rocks except for \_P and \_Y

### Metamorphic rocks

X metamorphic rock, unclassified  
XP phyllite  
XL slate  
XS schist  
XA amphibolite  
XH hornfels  
XQZ meta-quartzite  
XQF quartzo-feldspathic rock/schist  
XGF granulite  
XGM migmatite  
XGN gneiss  
XCS calc-silicate rock (*incl. skarns*)  
XMB marble/meta-carbonates  
XIF meta-iron formation

### Suffixes for metamorphic rocks

\_F felsic (*or of light minerals*)  
\_I intermediate  
\_M mafic (*or of dark minerals*)  
\_U ultramafic  
\_SO metasedimentary  
\_SR after conglomeratic sediments  
\_SA after sandy sediments (*psammites*)  
\_SL after muddy sediments (*pelites*)  
\_V volcanogenic

### Mineralisation

Z mineralisation, ore  
ZZ massive sulphide (>50%)  
ZS semimassive sulphide (20-50%)  
ZST stringer mineralisation  
ZD disseminated mineralisation  
ZSE segregation/patchy mineralisation  
ZL lode  
ZGOS gossan  
ZFE ironstone (*after mineralisation*)

### Others

V vein, unclassified  
O rock, unclassified  
OA totally altered rock, unclassified  
OI intrusive rock, unclassified  
OV volcanic rock, unclassified  
OBX breccia, unclassified  
OZP possible gossan/pseudogossan  
OFE ironstone/ferruginous rock (*not necessarily mineralised*)

OF fault (*zone*)  
OC cavity  
OR rubble (*pad fill, tailings, etc*)  
ONL not logged  
ONS no sample/core loss  
Note: V, O and OA can have a mineral qualifier, eg VQZ, OACB

### LITHOLOGICAL RELATIONSHIPS

+ and *or* hosted by  
/ over *or* after *or* derived from *or* interpreted as  
- transitional  
= or  
c clast lithology (*in digital database*)  
( ) clast lithology (*on plans and sections*), eg SRB(C), or minor lithologies, eg SA+(SL), or local variations, eg (pw)

## QUALIFIERS

Two lower case characters each

### Colour

bk	black
bu	blue
br	brown
bf	buff
cm	cream
gr	green
gy	grey
kh	khaki
or	ochre ( <i>yellow-brown</i> )
ov	olive
og	orange
pk	pink
pz	purple
rd	red
ta	tan
wh	white
ye	yellow
lt	light
dk	dark

Note: up to three colour qualifiers can be used, eg *ltgrgy*

### Weathering

sw	strongly weathered
mw	moderately weathered
ww	weakly weathered
fr	fresh

### General grain size

fg	fine grained		
mg	medium grained		
cg	coarse grained		
	<i>Arenites</i>	<i>Ore</i>	<i>Igneous</i>
<i>fg</i>	<i>&lt;1/4mm</i>	<i>&lt;1/2mm</i>	<i>&lt;1mm</i>
<i>mg</i>	<i>1/4-1/2mm</i>	<i>1/2-2mm</i>	<i>1-5mm</i>
<i>cg</i>	<i>1/2-2mm</i>	<i>&gt;2mm</i>	<i>&gt;5mm</i>

### Sedimentary

md	muddy
cy	clayey
sl	silty
sn	sandy
gv	gravelly ( <i>&gt;2mm</i> )
gl	granular ( <i>2-4mm</i> )
pe	pebbly ( <i>4-64mm</i> )
co	cobbly ( <i>64-256mm</i> )
bd	bouldery ( <i>&gt;256mm</i> )
ms	matrix supported/loose packed
cs	clast supported/close packed
ru	rip up clasts
mm	monomictic
pm	polymictic
om	oligomictic
im	immature
me	mature
ag	angular
rn	rounded
la	laminated
xl	cross laminated <i>]</i>
pl	plane laminated <i>]</i> <i>&lt;10mm</i>
wl	wavy laminated <i>]</i>
be	bedded
tn	thin bedded ( <i>10-100mm</i> )
mb	medium bedded ( <i>100-300mm</i> )
tk	thick bedded ( <i>&gt;300mm</i> )
ib	interbedded
xb	cross bedded
gb	graded bedded
rb	ripple bedded

### General

Note: qualifier denoted \* to immediately precede qualifier it relates to, eg *wy py*, *syam*

ay*	accessory/trace
wy*	weakly
my*	moderately
sy*	strongly
al	accretionary lapilli
ar*	acicular
bb*	aggregated blebs & blebs
at*	aggregates
aa	altered
am	amygdaloidal
ap	aphanitic

fx	asbestos-form or fibrous
au	augen
ax	autobrecciated
ac	autoclastic
bn	banded
ub	beef spinifex
bi	bladed
bl	bleached
bb*	blebs & aggregated blebs
by	blocky
pj*	blotchy/patchy
bv	botryoidal
bw	boxwork
bx	brecciated/breccia
cq	chill margin
ci*	clastic
cf	colloform banding
xt	crystal
uc	cummulate
ds*	disseminated
eg	equigranular
eu*	euhedral
fk	felted
fi	fiamme
fx	fibrous or asbestos-form
fz	fissile
ft	float
fb	flow banded
ux	flow top breccia
os	fossiliferous
fw*	fracture fill
gs	glass shards
vt	glassy/vitric
gm	glomeroporphyritic
gi	gneissic
gz	gossanous
gk	granoblastic
gc	graphic/micrographic
hf	hornfels
hc	hyaloclastic
pv*	impregnation/pervasive
in	indurated
ix	ironstone matrix
ir*	irregular
ka	karst/ic
kn	knobbly
la	laminated
le	lenticular
lu	leucocratic
lc	lithic
lp	lithophysae
to	lobate/tongue shaped
mc	magnetic
mv	massive ( <i>not to be used for structural fabrics - see uf</i> )
mx	matrix sulphides
mq	melanocratic
nr	mesocratic
gc	micrographic/graphic
mp	micropoikilitic
ml	mottled
mk	myrmikitic
nd	nodular
nm	non-magnetic
oc	ocelli-bearing/variolitic
oh	ophitic
pj*	patchy/blotchy
pp	peperitic
pc	perlitic
pv*	pervasive/impregnation
pw	pillowed
pi	pisolithic
bp	poikiloblastic
ps	porous
pr	porphyritic
ph	porphyroblastic
pd	porphyroclastic
pg	puggy
pu	pumiceous
rt*	radiating
uo	random olivine spinifex
re	reducing conditions
rm*	remobilised
rp*	replacive
ro	ropey

sq	saccharoidal/sugary
sc	scoriaceous
us	sheaf spinifex
sk	skeletal
sh	spheroidal, spherulitic
sx	spinifex-textured
so	stockwork
st	stringer
sm	stromatolitic
sq	sugary/saccharoidal
sg	supergene
to	tongue shaped/lobate
tu	tubular
tf	tuffaceous
oc	variolitic/ocelli-bearing
ve	vesicular
vt	vitric/glassy
vu	vuggy
wk	webwork
wd	welded
ws*	wispy
xo	xenoliths/blasts/clasts

### Veining

bc	bucky
vc	concordant
vx	crosscutting
dy	drusy
la	laminated
ee	en echelon
ir	irregular
pa	planar
pt	ptygmatic
sv	stepped
so	stockwork
st	stringer
qs	quartz stringers
qv	quartz veining
vn	veining
cv	comb veining
vs	vein selvage
ws	wispy

### Structural

uf	unfoliated ( <i>do not use mv</i> )
fo	foliated
wf	weakly foliated
mf	moderately foliated
sf	strongly foliated
ss	sheared
fc	cleaved
fs	schistose
fl	linear fabric
fv	crenulated fabric
df	folded/contorted/deformed
fa	fractured/broken
of	faulted/fault
cz	contact
fm	mylonitic fabric
fp	fault pug/gouge/cataclasite
ff	brittle fault ( <i>with slickenlines</i> )
fj	jointed
wj	weakly jointed
mj	moderately jointed
sj	strongly jointed
cj	columnar jointed
bx	brecciated/breccia
xj	jig saw breccias
xf	fault breccias

### Mineral

Note: mineral codes also relate to adjectives, eg *py* can be pyrite or pyritic

### Silicates

ae	actinolite
ab	albite
af	alkali feldspar
ad	andalusite
ah	anthophyllite
qb	blue quartz
bt	biotite
ch	chlorite
cx	clinopyroxene
cd	cordierite
ep	epidote
fd	feldspar
fu	fuchsite
gt	garnet

gu	grunerite/cummingtonite
hb	hornblende, dark amphibole
js	jasper
ky	kyanite
lz	lizardite
mi	mica
mu	muscovite
ol	olivine
op	orthopyroxene
pf	plagioclase feldspar
kf	potassium feldspar
pq	pyrophyllite
px	pyroxene
qz	quartz
se	sericite
sr	serpentine
sa	silica, amorphous
sz	sillimanite
tc	talc
tm	tourmaline
tr	tremolite
wo	wollastonite
zo	zoisite

### Oxides

cr	chromite
gh	gahnite
go	goethite
he	hematite
il	ilmenite
lx	leucoxene
lm	limonite
mh	maghemite
mt	magnetite

### Carbonates

ak	ankerite
ca	calcite
cb	carbonate/calcareous
do	dolomite
ma	magnesite
nc	nickel carbonates, unclassified
sd	siderite

### Sulphates

ai	alunite
an	anhydrite
ba	barite
gp	gypsum
ja	jarosite

### Sulphides

as	arsenopyrite
bo	bornite
cc	chalcocite-covellite
cp	chalcopyrite
hg	cinnabar/mercury minerals
xp	ex-pyrite
xs	ex-sulphide
gn	galena
mo	molybdenite
ns	nickel sulphides, unclassified
pn	pentlandite
py	pyrite
po	pyrrhotite
sp	sphalerite
sb	stibnite
su	sulphides, unclassified
tt	tennantite-tetrahedrite
vi	violarite

### Others

ao	arsenic minerals, secondary
cu	copper minerals, secondary
ni	nickel minerals, secondary
pb	lead minerals, secondary
zn	zinc minerals, secondary
ck	calcrete
cn	carbonaceous
ct	chert
cl	clay
fe	ferruginous
au	gold
ga	glauconite
gf	graphite
mn	manganiferous
si	siliceous/silicified