











×.		Cla	assificatio	on of igi	neou	s rock	S	
Quar	ntitative p	arameters						
· Ch	emical com	position						
	silica col	<i>ntents:</i> ultrab	asic, basic, i	intermediat	e, acio	ł		
	Total Alk	ali (Na <sub>2</sub> O + k	(20) – Silica	diagram (7	AS)			
	normati	e compositio	n					
Liiteo	hasia	Decia	Interr	nodiata		Asid	/ A sidis	
Ultra	Dasic	Basic	Interr	neciate		Acia	ACIDIC	
40	45	50 S Mass	52 55 % of SiO <sub>2</sub> i	60 n rock	63	65	70	
							Gill (2010)	







































man and the second s Simple recalculations  $FeOt = FeO + 0.89981 \times Fe_2O_2[wt.\%]$ Niggli (1948) defined simple cationic values. Several of them, *si, al, fm, c, alk, k, mg, ti, p, c/fm,* and *qz* are still in use.  $mg \# = 100 \frac{MgO}{FeO + MgO} [mol.\%]$  $Mg \# = 100 \frac{MgO}{FeOt + MgO} [mol.\%]$ Mg# or mg# represent useful index of fractionation for binary plots showing differentiation trends. 

O.	Multicationic classifications						
Example of	Example of calculation						
	Wt. %	MW	n	Cationic proportions	Millications (per 100 g of rock)		
SiO <sub>2</sub>	73.60	60.09	×1	1.225	1225		
TiO <sub>2</sub>	0.10	79.90	×1	0.001	1		
Al <sub>2</sub> O <sub>3</sub>	13.17	101.96	x2	0.258	258		
Fe <sub>2</sub> O <sub>3</sub>	0.99	159.69	x2	0.012	12		
FeO	1.61	71.85	x1	0.022	22		
MgO	0.06	40.30	×1	0.001	1		
CaO	0.70	56.08	x1	0.012	12		
Na <sub>2</sub> O	3.69	61.98	x2	0.119	119		
K <sub>2</sub> O	5.38	94.20	x2	0.114	114		
$R_1 = 4Si - 11$ $R_2 = 6 Ca + 2$	(Na + K) - 2 (Fe Mg + Al = 72 +	e + Ti) = 4900 - 1 + 2 + 258 = 332	11(233) - 2(	12 + 22 + 1) = 22 De la Roche Batchelor and Bi	267 2 et al. (198 owden (198		







Ó	Multicationic classifications						
Example of calculation							
-					Millications		
		Wt. %	MW	n	(per 100 g		
					of rock)		
	SiO <sub>2</sub>	66.95	60	x1	1116		
	TiO <sub>2</sub>	0.35	80	x1	4		
	Al <sub>2</sub> O <sub>3</sub>	16.16	102	x2	317		
	Fe <sub>2</sub> O <sub>3</sub> <sup>t</sup>	2.95	160	x2	37		
	MnO	0.10	71	x1	1		
	MgO	0.68	40	x1	17		
	CaO	3.96	56	x1	71		
	Na <sub>2</sub> O	4.27	62	x2	138		
	K <sub>2</sub> O	2.97	94	x2	63		
Q = Si/3 P = K - ( A = AI - ( B = Fe +	- (K + Na + 2C Na + Ca) = -1 K + Na + 2 Ca Mg + Ti =58	Ca/3) = <u>124</u> 46 ) = -26		Debor	n and Le Fort (19		









































25	Petrogene	etic classifi	cation of g	ranitoid rocks
	I	S	М	A
SiO <sub>2</sub>	53-76 %	65-74 %	46-70 %	High
K <sub>2</sub> O/Na <sub>2</sub> O	Low	High	Low	Na <sub>2</sub> O high
Shand`s index	A/ CNK < 1.1	A/ CNK > 1.1	A/ CNK < 1.0	A/ CNK > 1.0
( <sup>87</sup> Sr/ <sup>86</sup> Sr) <sub>i</sub>	< 0.705	> 0.707	< 0.705	variable
δ <sup>18</sup> Ο	< 9 ‰	> 9 ‰	< 9 ‰	variable
Special geochemical features				Low CaO, high Fe/Mg Ta, Nb, Zr, REE, F
Source rocks	Basic to intermediate igneous rocks, usually subduction-related	Sedimentary rocks	Partial melting of subducted oceanic crust, fractional crystallization from basaltic magma	Anorogenic settings, variable models, e.g remelting of granuliti residue left behind b extraction of (normal granitic melt
A/	$CNK = \frac{Al_2O_3}{CaO + Na_2O + K_2}$	[mol. %]	$A/NK = \frac{Al_2C}{Na_1O_2}$	$\frac{D_3}{K O}$ [mol. %]















