Table1.Geochemical components of gases in the study area.

Sample	He	H_2	CO_2	CH_4	O_2	N_2	Ar	$^3He/^4He$	$^4He/^{20}Ne$	$CO_2/^3He$	$\delta^{13}C\ CO_2$	[a]R/Ra	[b]Rc/Ra	[c]Mantle percent	CO_2		
	ppm	ppm	%	%	%	%	%				‰			%	[d]O	[e]C	[f]M
S1(G1)	7.6	1.1	98.06	0.01	0.32	1.62	0.02	5.20E-06	46	3.49E+10	-4.2	3.71	3.73	46.48	13.0	82.7	4.3
S13(G2)	6607.0	14	6.64	0.72	0.02	88.32	1.05	5.82E-07	737	1.73E+07	-10.3	0.42	0.42	5.01	-	-	-

'-'represent No data. The data of S13 gas is quoted in [68].

[a] R/Ra is measured $^3He/^4He$ ratio divided by the $^3He/^4He$ ratio in air = 1.39×10^{-6} [68,77].

[b] $X\text{-value}_{Bubbling\ gas}$ = (4He/20Ne)measured/(4He/20Ne)air, Rc/Ra is the air corrected He isotope ratio = [(R/Ra×X)-1]/(X-1) [77].

[c] Mantle percent =mantle derived He.

[d] O=CO_2 (%) Organic.

[e] C=CO_2 (%) Carbonate.

[f] M=CO_2 (%) Mid-Ocean Ridge Basalt (MORB).