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L A Μ P I R A N

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Klasifikasi Pettijohn, 1975



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Lokasi : Tujuh	Bukit					I	Form	asi :									
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mineral terdiri dari bio	tit, pirokse	n, kuars	sa, mi	neral Des	opaq	, dar si Mi	n mas inera	sa da logi	isar.	Mem	111111	ukura	an mi	neral	0,01	-0,451	mm.
Komposisi Minoral	Jumlah	1		Dec	MI IP.		Ko	toro	naon	Ont	l- M	inore	.1				
Komposisi Minerai	(%)						ке	tera	ngan	Opu		inera	u 				
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		kem	lbarar	n tida	k ada	•											
		Wa	ma ab	sorp	si cok	elat.	warr	na int	erfer	ensi (cokel	at, be	entuk	subh	edral	l-anhe	edral.
Biotit (Bt)	Biotit (Bt) relief sedang, intensitas sedang, belahan tidak ada, ukuran mineral 0,05 - 0,5																
		mm	•														
Dinalagan (Da)	150/	War	ma a	bsorp	osi co	kela	it, wa	arna	inter	feren	si ku	uning	, rel	ief re	endah	n, int	ensitas
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Massa Dasar	10%	inte	rferen	isi ab	u-abu	ı keh	itam	an.									
Nama Batuan : Daci	te (Travis,	1955)															

Klasifikasi Travis, 1955

ľ		K. Felsj	par > 2/3 Selur	uh Feldspar	K. Felspar	1/3 – 2/3 selum	ah Feldspar	F	elspar Plagio	klas > 2/3 s	eluruh Feld	spa	ır	Sedikit/Tic	lak ada	Tipe
	MINERAL	KWAR	KWARSA <10%	FELSPATO	KWARSA	KWARSA <10%	FELSPATO	K.Feldspar >10% seluruh Felspar	K. F Na - Pla	^r elspar <10 ⁰ Igioklas	6 Seluruh I Ca - I	Fels Plag	par riok <mark>l</mark> as	Terutama :	Terutam 8 : Mineral	100,000
		SA >10%	FELSPATO ID <10%	ID >10%	>10%	FELSPATOI D <10%	ID >10%		KWARSA >10%	Kwarsa <10% Felspatoi d <10%	Kwarsa <1096 Felspatoi <1096	d	Felspatoi d >10% Pyroksin >10%	Piroksin Dan atau Olivin	Fe/Mg Dan Felspatoi d	
	MINERAL TAMBAHAN KHAS	Terutami Juga	a : Hornblend Piroksin, N : Na-Amphil Kankrinit, Sodalit	e, Biotit, fuskovit pol Eigirin, Turmalin,	Terutama :] Juga :]	Hornblende, Bic Na-Amfibol, Eig	tit, Piroksin irin	Terutama Juga	: Hornblen Piroksin (dalam Ar : Felspatoid Amphibol	de, Biotit, adesit) , Na-	Terutams Ur. Juga : Hor Kwa Na-2	alit alit abl arsa Any	rioksin, Olovin ende,Biotit, , Eigirin, phibol	Terutama : Serpentin Bijih besi Juga : Biotit, Hronblende	Hornblen e Biotit Bijih besi	PEGMATIT
-	INDEKS WARNA	10	15	20	20	25	30	20	20	25	30	10	60	95	55	APLIT
FANERITIK	EKWIGRANULAR Batolit "Stock" Lakolit luas Retas tebal Sill	GRANI T	SIANIT	SIANIT NEFELIN	MONSONIT KWARSA (ADAMELIT)	MONSONIT	MONSONIT NEFELIN	GRANO DIORIT	DIORIT KWARSA (TONALIT	DIORIT	GABRO Norit Olivin salu Traktolit Anortorit Gabro kwarsa	(Dolerit)	TERALIT	PERIDOTIT Harzburgit Pikrit Dunit Piroksen Serpentinit	IJOLIT Messorite Dsb	LAMPROPIR
RITIK	MASA DASAR FANERITIK Lakolit Retas Sill "mug" "Stock" kecil Tepi masa luas	PORFIR GRANIT	PORFIRI SIANIT	PORFIRI SIANIT NEFELIN	PORFIRI MONZONIT KWARSA	PORFIRI MONZONIT	PORFIRI MONZONIT NEFELIN	PORFIRI GRANO DIORIT	PORFIRI DIORIT KWARSA	PORFIRI DIORIT	PORFIRI GABRO	DIABAS	PORFIRI TERALI	PORFIRI PERIDOTIT		
PORF	MASA DASAR AFANITIK Retas Sill Lakolit Aliran Pemrukaan	PORFIRI RIOLIT	PORFIRI TRAKIT	PORFIRI FONOLIT	PORFIRI LATIT KWARSA	PORFIRI LATIT	PORFIRI LATIT NEFELIN	PORFI	RI DASIT	PORFIRI ANDESIT	PORFIRI BASAL		PORFIRI TEFRIT	PORFIRI LIMBURGIT		
NITIK	MIKROKRISTALI Retas Sill Aliran Permukaan Tepi masa luas "welded tuffs"	RIOLIT	TRAKIT	FONOLIT	LATIT KWARSA (DELENIT)	LATIT (TRAKIT- ANDESIT	LATIT NEFELIN	DA	ASIT	ANDESIT	BASAL	8	TEFRIT	LIMBURGIT	Nefelit Lesitit Melilitit Olivin Nepelinit Dsb.	TRAP FELSIT
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No. Sayatan : UHGZ-23-143-131 Satuan : Diorit																	
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Klasifikasi	: Trav	vis, 195	5														
Deskripsi Mikroskopis : Warna absorbsi tidak berwarna warna inteferensi putih hingga hiru muda kristalinitas hinokristalin grapularitas																	
porfiroafanitik, inequi	warna absorbsi tidak berwarna, warna intererensi putih hingga biru muda, kristalinitas hipokristalin, granularitas porfiroafanitik, inequigranular, ukuran mineral $0.1 - 1.25$ mm, bentuk mineral subhderal - anhedral. Komposisi mineral																
terdiri dari Kuarsa, Pla	agioklas, P	iroksen	, Bioti	t, daı	n mine	eral	opaq								-		
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Komposisi Mineral	Jumla (%)	h					Ke	terar	ıgan	Opti	k Mi	inera	ıl				
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Biotit (Bt)	Biotit (Bt) 10% refer scharg, mensitas scharg, befanan tudak ada, ukuran minerar 0,05 - 0,5 mm.																
	Warna absorbsi tidak berwarna, pleokroisme monokroik, bentuk mineral																
Plagicklas	Plagioklas 20% subhedral - anhedral, dan belahan satu arah, pecahan tidak ada, kembaran ada,																
Flaglokias	20%	rel	ief ren	dah c	lan uk	curar	n min	eral (),5 –	0,55	mm.	War	na int	erfer	ensi j	putih	
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Piroksen (Px)	15%	ren	idah, t	entu	k mir	neral	subh	ina iedra	l-anl	hedra	l, be	lahar	, ren 1 satu	aral	nuar 1,uku	ran n	nineral
		0,0	1 - 0,5	mm	, jenis	s gel	apan	mirir	ıg.						-		
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wiineral Opaq (Opq)	10%	sut	ohedra	l-anh	edral	ukui	an m	inera	1 >0,	2mm	. inte	11010	aisi 11	italli,	Jent	un III	nicial
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Iviassa Dasar	20%	int	erferer	nsi ab	u-abu	ı keh	itam	an.									
Nama Batuan : <i>Diorite</i> (Travis, 1955)																	

Klasifikasi Travis, 1955

T		K. Fels	oar > 2/3 Selur	uh Feldspar	K. Felspar	1/3 – 2/3 selum	ah Feldspar	F	elspar Plagio	klas > 2/3 s	eluruh Feld	par	Sedikit/Tic	lak ada	Tipe
							A	K.Feldspar	K. F	elspar <100	% Seluruh F	elspar	Telus	Terutam	-Kuusus
	MINERAL	KWAR	KWARSA <10%	FELSPATO	KWARSA	KWARSA <10%	FELSPATO	>10% seluruh Felspar	Na - Pla	igioklas	Ca - P	lagioklas	Terutama :	a : Afineral	
		SA >10%	FELSPATO ID <10%	ID >10%	>10%	FELSPATOI D <10%	ID >10%		KWARSA >10%	Kwarsa <10% Felspatoi d <10%	Kwarsa <10% Felspatoio <10%	Felspatoi d >10% Pyroksin >10%	Piroksin Dan atau Olivin	Fe/Mg Dan Felspatoi d	
	MINERAL TAMBAHAN KHAS	Terutams Juga	i : Hornblend Piroksin, M : Na-Amphil Kankrinit, Sodalit	e, Biotit, fuskovit pol Eigirin, Turmalin,	Terutama : l Juga : N	Hornblende, Bi Va-Amfibol, Eig	uit, Piroksin irin	Terutama Juga	: Hornblen Piroksin (dalam Ar : Felspatoid Amphibol	de, Biotit, adesit) , Na-	Terutama Urs Juga : Horr Kwa Na-A	: Prioksin, lit,Olovin blende,Bio t t, rsa, Eigirin, mphibol	Terutama : Serpentin Bijih besi Juga : Biotit, Hronblende	Hornblea e Biotit Bijih besi	PEGMATIT
	INDEKS WARNA	10	15	20	20	25	30	20	20	25	30	60	95	55	APLIT
FANERITIK	EKWIGRANULAR Batolit "Stock" Lakolit luas Retas tebal Sill	GRANI T	SIANIT	SIANIT NEFELIN	MONSONIT KWARSA (ADAMELIT)	MONSONIT	MONSONII NEFELIN	GRANO DIORIT	DIORIT KWARSA (TONALIT	DIORIT	GABRO Norit Olivin salu Traktolit Anortorit Gabro kwarsa	Eteralit	PERIDOTIT Harzburgit Pikrit Dunit Piroksen Serpentinit	IJOLIT Messorite Dsb	LAMPROPIE
RITIK	MASA DASAR FANERITIK Lakolit Retas Sill "mug" "Stock" kecil Tepi masa luas	PORFIRI GRANIT	PORFIRI SIANIT	PORFIRI SIANIT NEFELIN	PORFIRI MONZONIT KWARSA	PORFIRI MONZONIT	PORFIRI MONZONIT NEFELIN	PORFIRI GRANO DIORIT	PORFIRI DIORIT KWARSA	PORFIRI DIORIT	PORFIRI GABRO	PORFIR TERALI	I PORFIRI I PERIDOTIT		
PORFI	MASA DASAR AFANITIK Retas Sill Lakolit Aliran Pemrukaan	PORFIRI RIOLIT	PORFIRI TRAKIT	PORFIRI FONOLIT	PORFIRI LATIT KWARSA	PORFIRI LATIT	PORFIRI LATIT NEFELIN	PORFI	RI DASIT	PORFIRI ANDESIT	PORFIRI BASAL	PORFIRI TEFRIT	PORFIRI LIMBURGIT		
NITIK	MIKROKRISTALE Retas Sill Aliran Permukaan Tepi masa luas "welded tuffs"	RIOLIT	TRAKIT	FONOLIT	LATIT KWARSA (DELENIT)	LATIT (TRAKIT- ANDESIT	LATIT NEFELIN	DA	SIT	ANDESIT	BASAL	TEFRIT	LIMBURGIT	Nefelit Lesitit Melilitit Olivin Nepelinit Dsb.	TRAP FELSIT
APA	GELAS Aliran permukaan Tepi retas dan Sill "Welded tuffs	OBSIDIA "PITCHS VITROF PERLIT BATUAP SKOREA	IN STONE" IR" UNG												

No. Sayatan : UHGZ-23-144-43 Satuan : Tonalit										
Lokasi : Tujuh	Bukit	Formasi :								
Foto										
A B C	DEF	G H I J A B C D E F G H I J								
1		1 . 1								
2	E Los All	Chl 2 Chl 2								
	ng	Px Opg								
3	2.5	3								
4	1.12	4								
5 PI	5 P. 5									
C Tring	and and an									
0	Qz	O Qz								
7										
8		8								
	//-NIKO	L X-NIKOL								
Lensa Okuler : 10x		Lensa Objektif : 5x Perbesaran Total : 50x								
Tipe Batuan	: Batuar	Beku								
Tipe Struktur	: Masif									
Klasifikasi : Travis, 1955										
Warna absorbsi tidak	berwarna, v	varna inteferensi putih hingga biru muda, kristalinitas holokristalin, granularitas								
porfifoafanitik, fabrik i	inequigranul	ar, ukuran mineral $0,075 - 2$ mm, bentuk mineral subhderal - anhedral. Komposisi								
mineral terdiri dari Kua	arsa, Plagiol	las, Piroksen, Klorit dan Mineral Opaq								
	Iumlah	Deskripsi Mineralogi								
Komposisi Mineral	(%)	Keterangan Optik Mineral								
		Warna absorbsi tidak berwarna, belahan tidak ada, pecahan ada, relief rendah,								
Kuarsa (Oz)	45%	bentuk mineral subhedral-anhedral, ukuran 0,01-0,5 mm warna interferensi putih keapu abuan pleokroisme tidak ada jenis gelapan bergelombang kembaran								
Kuaisa (QZ)	4,3 %	tidak ada.								
		Warna absorbs hijau keabu-abuan, warna interferensi cokelat kehijauan, bentuk								
Klorit (Ch)	20%	ukuran mineral 0,05 - 0,5 mm.								
	10	subhedral - anhedral, dan belahan satu arah, pecahan tidak ada, memiliki								
Plagioklas	10%	kembaran, relief rendah dan ukuran mineral $0.5 - 0.75$ mm. Warna interferensi								
		putih hingga abu abu (Orde I), jenis gelapan miring.								
Piroksen (Px)	15%	Warna absorpsi cokelat, warna interferensi kuning, relief rendah, intensitas rendah bentuk mineral <i>subhedral-anhedral</i> belahan satu arah ukuran mineral								
r nokšen (r k)	1570	0,01 - 0,5 mm, jenis gelapan miring.								
Mineral Opaq (Opq)	10%	Warna absorbsi tidak berwarna hitam, warna interferensi hitam, bentuk mineral subbedral-anbedral ukuran mineral >0.2mm								
Nama Ratuan + Diari	te Kuarsa (Tonglita) (Travis 1955)								
Tialila Datuali ; Diori	ie Isualsa (tonume) (114/15, 1755)								

Klasifikasi Travis, 1955

T		K. Felsp	ar > 2/3 Selur	uh Feldspar	K. Felspar	1/3 – 2/3 selum	ih Feldspar	F	elspar Plagio	klas > 2/3 s	eluruh Feld	spar	Sedikit/Ti	dak ada par	Tipe Khusus
	MINERAL	KWAR	KWARSA <10%	FELSPATO	L'MADE A	KWARSA <10%	FELSPATO	K.Feldspar >10% seluruh Felspar	K. I Na - Pla	^r elspar <10 ⁰ agioklas	6 Seluruh I Ca - I	'elspar 'lagiok <mark>la</mark> s	Terutama :	Terutam 8 :	
	UTAMA	SA >10%	FELSPATO ID <10%	ID >10%	>10%	FELSPATOI D <10%	ID >10%		KWARSA >10%	Kwarsa <10% Felspatoi d <10%	Kwarsa <1096 Felspatoi <1096	d >10% d >10% Felspati d >10%	i Piroksin Dan atau Olivin	Fe/Mg Dan Felspatoi d	1
	MINERAL TAMBAHAN KHAS	Terutama Juga	i : Hornblend Piroksin, N : Na-Amphil Kankrinit, Sodalit	e, Biotit, fuskovit pol Eigirin, Turmalin,	Terutama :] Juga : N	Hornblende, Bic Na-Amfibol, <mark>E</mark> ig	tit, Piroksin irin	Terutama Juga	: Hornblen Piroksin (dalam Ar : Felspatoid Amphibol	de, Biotit, adesit) I, Na-	Terutams Un Juga : Hon Kwa Na-J	: Prioksin, alit,Olovin ablende,Biot rsa, Eigirin, amphibol	Terutama : Serpentin Bijih besi t Juga : Biotit, Hronblende	Hornblen e Biotit Bijih besi	PEGMATIT
Y	INDEKS WARNA	10	15	20	20	25	30	20	20	25	30	60	95	55	APLIT
FANERITIE	EKWIGRANULAR Batolit "Stock" Lakolit luas Retas tebal Sill	GRANI T	SIANIT	SIANIT NEFELIN	MONSONIT KWARSA (ADAMELIT)	MONSONIT	MONSONIT NEFELIN	GRANO DIORIT	DIORIT KWARSA (TONALIT	DIORIT	GABRO Norit Olivin salu Traktolit Anortorit Gabro kwarsa	Eterali	PERIDOTIT Harzburgit Pikrit Dunit Piroksen Serpentinit	IJOLIT Messorite Dsb	LAMPROPIR
RITIK	MASA DASAR FANERITIK Lakolit Retas Sill "mug" "Stock" kecil Tepi masa luas	PORFIRI GRANIT	PORFIRI SIANIT	PORFIRI SIANIT NEFELIN	PORFIRI MONZONIT KWARSA	PORFIRI MONZONII	PORFIRI MONZONIT NEFELIN	PORFIRI GRANO DIORIT	PORFIRI DIORIT KWARSA	PORFIRI DIORIT	PORFIRI GABRO	PORFI	RI PORFIRI II PERIDOTIT		
PORF	MASA DASAR AFANITIK Retas Sill Lakolit Aliran Pemrukaan	PORFIRI RIOLIT	PORFIRI TRAKIT	PORFIRI FONOLIT	PORFIRI LATIT KWARSA	PORFIRI LATIT	PORFIRI LATIT NEFELIN	PORFII	RI DAS <mark>I</mark> T	PORFIRI ANDESIT	PORFIRI BASAL	PORFIR TEFRIT	I PORFIRI LIMBURGIT		
NITIK	MIKROKRISTALI Retas Sill Aliran Permukaan Tepi masa luas "welded tuffs"	RIOLIT	TRAKIT	FONOLIT	LATIT KWARSA (DELENIT)	LATIT (TRAKIT- ANDESIT	LATIT NEFELIN	DA	SIT	ANDESIT	BASAL	TEFRI	I LIMBURGI	Nefelit Lesitit Melilitit Olivin Nepelinit Dsb.	TRAP FELSIT
APA	GELAS Aliran permukaan Tepi retas dan Sill "Welded tuffs	OBSIDIA "PITCHS VITROFT PERLIT BATUAP SKOREA	IN STONE" IR" UNG												

No sayatan / No stasiun :	UHGZ-23-143-97
Lokasi :	Fujuh Bukit
Nama Batuan :	Dasit
Provide a second s	Cop Cop
Ref. Series	
	Cop Pr
Lensa Okuler : 10x	Image: Copy of the second s
Tipe Endapan : Epite	rmal (High Sulphidation) Kollioninit Kovolit Stolorit
Jenis Mineransasi : Firit Poforonsi : Oro N	- Kaikopirit - Kovent - Staterit Jiporal Atlas (Marshal dkk. 2004)
Kelerelisi : Ole N	Interal Attas (Marshal ukk, 2004)
Kenampakan pada sayatan p Sfalerit. Dijumpai tekstur <i>ir</i> memiliki tekstur <i>infilling</i> . Mi tekstur <i>replacement</i> dengan n dengan mineral pirit dan ka kalkopirit. Mineral kalkopirit	oles memperlihatkan kehadiran mineral yang terdiri dari Pirit, Kalkopirit, Kovelit, dan <i>tfilling, intergrowth,</i> dan <i>replacement</i> . Mineral pirit, kalkopirit, kovelit, dan sfalerit neral kalkopirit dan pirit menunjukkan tekstur <i>intergrowth</i> . Mineral pirit menunjukkan nineral kalkopirit, kovelit, dan sfalerit. Mineral kovelit menunjukkan tekstur <i>replacement</i> lkopirit. Mineral sfalerit menunjukkan tekstur <i>replacement</i> dengan mineral pirit dan sfalerit.
	Deskripsi Mineralogi
Komposisi Mineral	Keterangan Optik mineral
Pirit (Py) (FeS ₂)	Berwarna putih kekuningan, bentuk subhedral - euhedral, ukuran $0,01 \text{ mm} - 0,9 \text{ mm}$, memiliki tekstur <i>infilling</i> , tekstur <i>intergrowth</i> bersama dengan kalkopirit, tekstur <i>replacement</i> dengan mineral kalkopirit, kovelit, dan sfalerit, bersifat isotropik, tidak dijumpai adanya pleokroisme.
Kalkopirit (Ccp) (CuFeS2)	Berwarna kuning, bentuk subhedral, ukuran 0,01 mm – 0,7 mm, memiliki tekstur <i>infilling</i> , tekstur <i>intergrowth</i> dengan mineral pirit, tekstur <i>replacement</i> dengan mineral kovelit dan sfalerit, bersifat isotropik, tidak dijumpai adanya pleokroisme.
Kovelit (Cv) (CuS)	Berwarna Biru tua, bentuk subhedral-euhedral, ukuran mineral 0,01 mm - 0,25 mm, memiliki tekstur <i>infilling</i> , tekstur <i>intergrowth</i> , dan tekstur <i>replacement</i> dengan mineral pirit dan kalkopirit, bersifat isotropik dan tidak dijumpai adanya pleokroisme.

Sfalerit (Sph)	Berwarna abu-abu, bentuk subhedral-euhedral, ukuran mineral 0,02 mm - 0,8 mm,
(ZnS)	memiliki tekstur infilling, tekstur replacement dengan mineral pirit dan kalkopirit,
	bersifat isotropik dan tidak dijumpai adanya pleokroisme.

No sayatan / No stasiun :	UHGZ-23-144-43								
Lokasi : Nama Ratuan ·	Tujun Bukli Tonalit								
Foto	Tonunt								
	Py Py Py Py Py Py Py Py Py Py		Bor Pyt- Bor						
Cop Lensa Okuler : 10x	ensa	Obyektif : 10x	Perbesaran Total : 100x						
Tipe Endapan : Epite	ermal (High Sulphidation)								
Jenis Mineralisasi : Pirit	<u>– Kalkopirit – Kovelit – B</u>	ornit							
Referensi : Ore I	Mineral Atlas (Marshal dkk, 1	2004)							
Kenampakan pada sayatan p Bornite. Dijumpai tekstur <i>infi</i> <i>infilling</i> . Mineral pirit, kalk tekstur <i>replacement</i> dengan r dengan mineral pirit, kalkop kalkopirit dan kovelit. Minera	oles memperlihatkan kehadi illing, intergrowth, dan replac opirit, dan kovelit juga mer nineral kalkopirit, kovelit, da irit, dan bornit. Mineral bor al kalkopirit menunjukkan tek Deckripei	ran mineral yang terdiri dari Pi <i>cement</i> . Mineral pirit, kalkopirit, nunjukkan tekstur <i>intergrowth</i> . an bornit. Mineral kovelit menun nit menunjukkan tekstur <i>replac</i> astur <i>replacement</i> dengan minera	rit, Kalkopirit, Kovelit, dan dan kovelit memiliki tekstur Mineral pirit menunjukkan njukkan tekstur <i>replacement</i> <i>ement</i> dengan mineral pirit, l pirit, kalkopirit, dan bornit.						
Komposisi Mineral		Keterangan Optik mineral							
Pirit (Py) (FeS2)	Berwarna putih kekuninga memiliki tekstur <i>infilling</i> <i>replacement</i> dengan mine dijumpai adanya pleokrois	Berwarna putih kekuningan, bentuk subhedral - euhedral, ukuran 0,01 mm – 0,9 mm, memiliki tekstur <i>infilling</i> , tekstur <i>intergrowth</i> bersama dengan kalkopirit, tekstur <i>replacement</i> dengan mineral kalkopirit, kovelit, dan bornit, bersifat isotropik, tidak dijumpai adanya pleokroisme.							
Kalkopirit (Ccp) (CuFeS2)	Berwarna kuning, bentuk <i>infilling</i> , tekstur <i>intergrow</i> kovelit dan bornit, bersifa	subhedral, ukuran 0,01 mm – <i>th</i> dengan mineral pirit, tekstur t isotropik, tidak dijumpai adany	- 0,7 mm, memiliki tekstur <i>replacement</i> dengan mineral va pleokroisme.						
Kovent (Cv) (CuS)	Berwarna Biru tua, bentu memiliki tekstur <i>infilling</i> bersifat isotropik dan tidal	ik subnedral-euhedral, ukuran n , tekstur <i>replacement</i> dengan r k dijumpai adanya pleokroisme.	nineral 0,01 mm - 0,6 mm, nineral pirit dan kalkopirit,						

Bornit (Bor)	Berwarna biru kemerahan, berukuran <0,3 mm, bentuk subhedral – anhedral tekstur
(Cu5FeS4)	replacement dengan mineral pirit dan kalkopirit, bersifat isotropik dan tidak dijumpai
	adanya pleokroisme



menunjukkan tekstur *replacement* dengan mineral kalkopirit, arsenopirit, dan sfalerit. Mineral arsenopirit menunjukkan tekstur *replacement* dengan mineral pirit, kalkopirit, dan sfalerit. Mineral sfalerit menunjukkan tekstur *replacement* dengan mineral pirit, kalkopirit. Mineral kalkopirit menunjukkan tekstur *replacement* dengan mineral pirit dan arsenopirit. Mineral kalkopirit menunjukkan tekstur *replacement* dengan mineral pirit dan sfalerit.

Deskripsi Mineralogi								
Komposisi Mineral	Keterangan Optik mineral							
Pirit (Py)	Berwarna putih kekuningan, bentuk subhedral - euhedral, ukuran 0,01 mm – 0,5 mm,							
(FeS ₂)	memiliki tekstur <i>infilling</i> , tekstur <i>intergrowth</i> bersama dengan kalkopirit, tekstur							
	replacement dengan mineral kalkopirit, arsenopirit, dan sfalerit, bersifat isotropik,							
	tidak dijumpai adanya pleokroisme.							
Kalkopirit (Ccp)	Berwarna kuning, bentuk subhedral, ukuran 0,01 mm - 0,5 mm, memiliki tekstur							
(CuFeS ₂)	<i>infilling</i> , tekstur <i>intergrowth</i> dengan mineral pirit, tekstur <i>replacement</i> dengan mineral							
	pirit, arsenopirit, dan sfalerit, bersifat isotropik, tidak dijumpai adanya pleokroisme.							
Arsenopirit (Apy)	Berwarna putih abu-abu, bentuk subhedral – anhedral, ukuran <0,6 mm, tekstur							
(FeAsS)	replacement, bersifat isotropik dan tidak dijumpai adanya pleokrisme.							

Sfalerit (Sph)	Berwarna abu-abu, bentuk subhedral-euhedral, ukuran mineral <0,3 mm, memiliki
(ZnS)	tekstur infilling dan replacement, bersifat isotropik dan tidak dijumpai adanya
	pleokroisme.

No sayatan / No stasiun :	UHGZ-23-144-103			
Lokasi : Nomo Potuon	Tujuh Bukit Protesi			
Nama Batuan :	Breksi			
P Sph Apy				
Ару Сру	Provide the second seco			
Lensa Okuler : 10x	Lensa Obyektif : 10x Perbesaran Total : 100x			
Tipe Endapan : Epite	ermal (High Sulphidation)			
Jenis Mineralisasi : Pirit	- Kalkopirit - Arsenopirit - Stalerit - Kovelit			
Mikroskopic :	VIIIICIAI AUAS (IVIAISIIAI UKK, 2004)			
Kenampakan pada sayatan poles memperlihatkan kehadiran mineral yang terdiri dari Pirit, Kalkopirit, Arsenopirit, Sfalerit, dan Kovelit. Dijumpai tekstur <i>infilling, intergrowth,</i> dan <i>replacement</i> . Mineral pirit, kalkopirit, sfalerit, dan arsenopirit memiliki tekstur <i>infilling</i> . Mineral pirit, kalkopirit, sfalerit, dan arsenopirit juga menunjukkan tekstur <i>intergrowth</i> . Mineral pirit menunjukkan tekstur <i>replacement</i> dengan mineral kalkopirit, arsenopirit, kovelit, dan sfalerit. Mineral arsenopirit menunjukkan tekstur <i>replacement</i> dengan mineral pirit, kalkopirit, dan sfalerit. Mineral sfalerit menunjukkan tekstur <i>replacement</i> dengan mineral pirit, kalkopirit, dan sfalerit. Mineral kalkopirit menunjukkan tekstur <i>replacement</i> dengan mineral pirit, kalkopirit dan arsenopirit. Mineral kalkopirit menunjukkan tekstur <i>replacement</i> dengan mineral pirit, kovelit, dan sfalerit. Deskripsi Mineralogi				
Komposisi Mineral Keterangan Optik mineral				
Pirit (Py) (FeS2)	Berwarna putih kekuningan, bentuk subhedral - euhedral, ukuran 0,01 mm – 0,4 mm, memiliki tekstur <i>infilling</i> , tekstur <i>intergrowth</i> bersama dengan kalkopirit, tekstur <i>replacement</i> dengan mineral kalkopirit, arsenopirit, kovelit, dan sfalerit, bersifat isotropik, tidak dijumpai adanya pleokroisme.			
Kalkopirit (Ccp) (CuFeS2)	Berwarna kuning, bentuk subhedral, ukuran 0,01 mm – 0,5 mm, memiliki tekstur <i>infilling</i> , tekstur <i>intergrowth</i> dengan mineral pirit, tekstur <i>replacement</i> dengan mineral pirit, arsenopirit, dan sfalerit, bersifat isotropik, tidak dijumpai adanya pleokroisme.			

Arsenopirit (Apy)	Berwarna putih abu-abu, bentuk subhedral – anhedral, ukuran <0,6 mm, bentuk					
(FeAsS)	subhedral – anhedral, tekstur replacement, bersifat isotropik dan tidak dijumpai adanya					
	pleokrisme.					
Sfalerit (Sph)	Berwarna abu-abu, bentuk subhedral-euhedral, ukuran mineral <0,3 mm, memiliki					
(ZnS)	tekstur infilling dan replacement, bersifat isotropik dan tidak dijumpai adanya					
	pleokroisme.					
Kovelit (Cv)	Berwarna Biru tua, bentuk subhedral-euhedral, ukuran mineral 0,01 mm - 0,25 mm,					
(CuS)	memiliki tekstur infilling, tekstur replacement dengan mineral pirit dan kalkopirit,					
	bersifat isotropik dan tidak dijumpai adanya pleokroisme.					



Arsenopirit (Apy)
(FeAsS)Berwarna putin abu-abu, bentuk subhedral – anhedral, ukuran <0,1 mm, bentuk
subhedral – anhedral, tekstur *intergrowth* dan *replacement*, bersifat isotropik dan tidak
dijumpai adanya pleokrisme.

Kovelit (Cv)	Berwarna Biru tua, bentuk subhedral-euhedral, ukuran mineral 0,01 mm - 0,08 mm,
(CuS)	memiliki tekstur infilling, tekstur replacement dengan mineral pirit dan kalkopirit,
	bersifat isotropik dan tidak dijumpai adanya pleokroisme.



Parto dani anotrophila						
Deskripsi Mineralogi						
Komposisi Mineral Keterangan Optik mineral						
Pirit (Py)	Berwarna putih kekuningan, bentuk subhedral - euhedral, ukuran $0,01 \text{ mm} - 0,2 \text{ mm}$,					
(FeS ₂)	memiliki tekstur <i>infilling</i> tekstur <i>intergrowth</i> bersama dengan kalkonirit tekstur					
	<i>replacement</i> dengan mineral kalkopirit dan arsenopirit, bersifat isotropik, tidak					
	dijumpaj adanya nleokrojsme					
Kalkopirit (Ccp)	Berwarna kuning, bentuk subhedral, ukuran 0,01 mm - 0,3 mm, memiliki tekstur					
(CuFeS ₂)	<i>infilling</i> , tekstur <i>intergrowth</i> dengan mineral pirit, tekstur <i>replacement</i> dengan mineral					
	pirit dan arsenopirit, bersifat isotropik, tidak dijumpai adanya pleokroisme.					
Arsenopirit (Apy)	Berwarna putih abu-abu, bentuk subhedral – anhedral, ukuran <0,6 mm, bentuk					
(FeAsS)	subhedral – anhedral, tekstur <i>intergrowth</i> dan <i>replacement</i> , bersifat isotropik dan tidak					
	dijumpai adanya pleokrisme.					

Bornit (Bor)	Berwarna biru kemerahan, berukuran <0,25 mm, bentuk subhedral – anhedral tekstur
(Cu5FeS4)	<i>infilling</i> , bersifat isotropik dan tidak dijumpai adanya pleokroisme

Match! Phase Analysis Report

Sample: UHGZ-143-40-PRO (2-70)

Sample Data

File name File path Data collected Data range Original data range Number of points Step size Rietveld refinement converged Alpha2 subtracted Background subtr. Data smoothed Radiation Wavelength UHGZ-143-40-PRO.ORG D:/MAGANG PT. BSI/DATA XRD/UHGZ-143-40-PRO Feb 16, 2024 19:24:26 2.000° - 70.000° 2.000° - 70.000° 3401 0.020 No No No Yes X-rays 1.540600 Å

Analysis Results



Elemental composition (Weight %)



Index	Amoun (%)	ntName	Formula sum	Element O	Amount (weight %) 51.5%(*)
Α	30.6	Quartz	O2 Si	Si	31.6%
В	1.0	Montmorillonite	Al0.86 Fe0.1 H Li0.08 Mg0.14 O10 Si3.9	AI	10.4%
С	15.2	Kaolinite	Al2 H4 O9 Si2	ĸ	3.9%
D	39.8	Illite	AI2 H2 K O12 Si4	Mg	1.7%
E	5.0	Dickite	AI2 H4 O9 Si2	H	
F	8.5	Chlorite	Al0.865 Fe0.255 H4 Mg2.292 O9 Si1.588	Fe	0.4%
	4.7	Unidentified peak a	area		
		,		*LE (sum)	52.1%

Amounts calculated by RIR (Reference Intensity Ratio) method

O2 Si 96-901-0145

Details of identified phases

A: Quartz (30.6 %)

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

0.792408^{*} 71 18 18 1.01 -0.060° P 32 2 1 S trigonal (hexagonal axes) a= 4.9230 Å c= 5.4090 Å 2.86 2.636 g/cm³ Ikuta D., Kawame N., Banno S., Hirajima T., Ito K., Rakovan J. F., Downs R. T., Tamada O., "First in situ X-ray diffraction identification of coesite and retrogradequartz on a glass thin section of an ultrahigh-pressure metamorphic rock and their crystal structure details Locality: Yangkou meta-igneous complex in themiddle part of the Sulu UHP terrain, eastern China Note: Sample is on a thinsection", American Mineralogist **92**, 57-63 (2007)

B: Montmorillonite (1.0 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

C: Kaolinite (15.2 %)

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

D: Illite (39.8 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

E: Dickite (5.0 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

F: Chlorite (8.5 %)

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor Space group Al0.86 Fe0.1 H Li0.08 Mg0.14 O10 Si3.9 96-901-0959 0.606405^{*} 301 106 94 0.06 -0.003° C 1 2/m 1 monoclinic $a = 5.1710 \text{ Å b} = 8.9570 \text{ Å c} = 9.7400 \text{ Å }\beta = 96.100 \text{ }^{\circ}$ 5.00 2.245 g/cm³ Gournis D., Lappas A., Karakassides M. A., Tobbens D., Moukarika A., "A neutron diffraction study of alkali cation migration in montmorillonitesSample: Li-mont-300", Physics and Chemistry of Minerals **35**, 49-58 (2008)

Al2 H4 O9 Si2 96-900-9235 0.671294^{*} 253 143 123 0.17 0.030° C 1 triclinic (anorthic) a= 5.1535 Å b= 8.9419 Å c= 7.3906 Å a= $91.926^{\circ} \beta$ = $105.046^{\circ} \gamma$ = 89.797° 0.97 2.608 g/cm³ Bish D. L., "Rietveld refinement of the kaolinite structure at 1.5 KNote: sample at T = 1.5 K", Clays and Clay Minerals **41**, 738-744 (1993)

Al2 H2 K O12 Si4 96-901-3733 0.670101* 303 111 98 0.31 -0.026° C121 monoclinic a= 5.1973 Å b= 8.9990 Å c= 10.1470 Å β = 99.000 ° 0.67 2.830 g/cm3 Drits V. A., Zviagina B. B., McCarty D. K., Salyn A. L., "Factors responsible for crystal-chemical variations in the solid solutionsfrom illite to aluminoceladonite and from glauconite to celadoniteSample Name: 10564". American Mineralogist 95, 348-361 (2010)

Al2 H4 O9 Si2 96-900-3082 0.606697^{*} 289 142 128 0.06 -0.007° C 1 c 1 monoclinic a= 5.1610 Å b= 8.9600 Å c= 14.4590 Å β= 96.770 ° 0.97 2.583 g/cm³ Dera P., Prewitt C. T., Japel S., Bish D. L., Johnston C. T., "Pressure-controlled polytypism in hydrous layered materialsSample: Low pressure dickite at P = 0.1 MPa", American Mineralogist **88**, 1428-1435 (2003)

Al0.865 Fe0.255 H4 Mg2.292 O9 Si1.588 96-901-0164 0.604070 300 162 140 0.07 C 1 2/m 1 Crystal system Unit cell I/Ic Calc. density Reference monoclinic a= 5.3363 Å b= 9.2400 Å c= 14.3700 Å β = 96.930 ° 0.69 2.700 g/cm³

2.700 g/cm³ Zanazzi P. F., Montagnoli M., Nazzareni S., Comodi P., "Structural effects of pressure on monoclinic chlorite: a single-crystal study", American Mineralogist **92**, 655-661 (2007)

^(*)2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the active search-match option 'Automatic zero point adaption'.

Search-Match

Settings

Reference database used	COD-Inorg 2023.12.05
Automatic zeropoint adaptation	Yes
Downgrade entries with low scaling factors	sYes
Minimum figure-of-merit (FoM)	0.60
2theta window for peak corr.	0.30 deg.
Minimum rel. int. for peak corr.	0
Parameter/influence 2theta	0.50
Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements of which at least one must be present:	H, Li, N, O, Na, Mg, Al, Si, S, K, Ca, Fe, Ni, Cu, As, Ag, Cs, Au
Elements that must NOT be present:	All elements not mentioned above

Peak List

No.	2theta [°]	d [Å]	l/l0 (peak height)	Counts (peak area)	FWHM	Matched
1	2.20	30./1/4	0.10	0.10	0.2800	
2	2.50	34.4833	0.11	0.10	0.4400	
3	2.70	32.6956	0.06	0.10	0.8480	
4	2.98	29.6241	0.18	0.10	0.2800	
5	3.22	27.4166	0.18	0.10	0.2800	
6	3.42	25.8137	1.39	0.77	0.2800	
1	3.64	24.2540	0.10	0.05	0.2800	
8	3.88	22.7543	0.18	0.10	0.2800	
9	4.24	20.8231	0.68	0.38	0.2800	
10	4.48	19.7081	0.18	0.10	0.2800	
11	4.66	18.9473	1.59	0.88	0.2800	
12	4.86	18.1680	2.09	1.16	0.2800	
13	5.06	17.4503	2.70	1.50	0.2800	
14	5.28	16.7237	3.53	1.96	0.2800	
15	5.66	15.6017	3.24	1.80	0.2800	
16	5.98	14.7676	1.52	0.85	0.2800	_
17	6.30	14.0182	0.18	0.10	0.2800	F
18	6.58	13.4222	5.67	2.88	0.2553	
19	6.84	12.9126	5.24	0.98	0.0946	
20	7.00	12.6178	2.73	1.15	0.2126	
21	7.38	11.9690	7.85	2.81	0.1804	
22	7.84	11.2677	8.43	6.77	0.4040	
23	7.98	11.0703	1.38	1.66	0.6057	
24	8.18	10.8001	8.21	18.93	1.1600	
25	8.52	10.3699	9.11	17.37	0.9600	
26	8.68	10.1791	9.42	11.97	0.6400	
27	8.90	9.9279	7.72	9.82	0.6400	D
28	9.14	9.6678	7.52	2.99	0.2000	В
29	9.74	9.0735	0.18	0.10	0.2800	
30	10.30	8.5814	5.39	0.96	0.0899	
31	10.48	8.4345	0.40	0.07	0.0899	
32	10.66	8.2924	2.28	0.41	0.0899	
33	10.94	8.0808	0.96	0.17	0.0899	
34	11.16	7.9220	0.19	0.10	0.2621	
35	11.54	7.6620	2.84	1.48	0.2621	
36	11.74	7.5319	1.24	0.64	0.2621	
37	11.92	7.4186	0.18	0.10	0.2800	
38	12.26	7.2136	0.18	0.10	0.2800	E
39	12.42	7.1210	0.45	0.25	0.2800	C,F
40	12.94	6.8360	0.18	0.10	0.2800	
41	13.18	6.7120	1.75	0.86	0.2465	
42	13.48	6.5633	0.18	0.10	0.2800	
43	13.66	6.4773	0.18	0.10	0.2800	
44	14.02	6.3117	0.31	0.17	0.2800	
45	14.38	6.1545	0.18	0.10	0.2800	
46	14.66	6.0376	1.20	0.67	0.2800	
47	14.86	5.9568	0.63	0.35	0.2800	
48	15.12	5.8549	0.18	0.10	0.2800	

49	15.48	5.7196	0.10	0.06	0.2800
50	15.72	5.6328	0.18	0.10	0.2800
51	16.32	5.4270	0.51	0.28	0.2800
52 53	16.78	5 2793	0.18	0.10	0.2800
54	17.16	5.1632	0.18	0.10	0.2800
55	17.42	5.0867	4.04	2.25	0.2800
56	17.68	5.0125	13.44	7.37	0.2760 D
57	17.98	4.9295	5.81	3.30	0.2861
58	18.30	4.8441	3.03	0.73	0.1209 B
59 60	18.48	4.7973	1.88	0.45	0.1209 0.2778 E
61	18.98	4.6720	0.09	0.05	0.2778
62	19.30	4.5953	0.36	0.16	0.2207 F
63	19.88	4.4625	52.29	43.49	0.4187 B,C,D,E,F
64	20.10	4.4141	0.10	0.10	0.5200 C,E,F
65 62	20.92	4.2429	207.48	126.51	0.3069 A,B,C,D,E,F
00 67	21.00	4.1140	0.05	0.10 10.28	1.1028 C,D,E 0.8800 B F
68	22.04	4.0298	5.31	2.96	0.2800
69	22.34	3.9763	3.09	1.72	0.2800 E
70	22.64	3.9243	5.88	4.21	0.3600 B
71	22.96	3.8704	3.98	3.97	0.5017 C,D,F
72	23.26	3.8211	4.58	1.37	0.1502
73 74	23.44 23.70	3.7922	6.38	3.78 1.66	0.0002 E
75	23.94	3.7141	7.38	2.93	0.2000 C
76	24.16	3.6808	9.15	4.75	0.2614 F
77	24.34	3.6539	8.10	13.52	0.8400
78	24.64	3.6101	6.90	3.84	0.2800 E
79	24.88	3.5759	0.41	0.10	0.1233 C,D,E,F
80 81	25.10	3.5450	4.02	2.57	0.2800 F
82	25.64	3.4716	0.18	0.10	0.2800
83	25.86	3.4425	7.53	23.92	1.6000 B,E
84	26.06	3.4166	10.12	36.99	1.8400 C
85	26.64	3.3435	1000.00	476.74	0.2400 A,C,D,F
86	27.44	3.2478	15.60	57.00	1.8400 E
07 88	27.04	3.2247	14.30	42.22	0.8800
89	28.22	3.1598	11.96	17.10	0.7200 C
90	28.48	3.1315	9.44	5.25	0.2800 B,D,F
91	28.68	3.1101	7.84	4.36	0.2800 C,E
92	28.94	3.0828	9.59	5.33	0.2800
93 94	29.30	3.0390 2.9938	10.01 0.10	10.70	0.3474 0.8000
95	30.02	2.9743	3.49	1.24	0.1790 F
96	30.36	2.9417	4.88	11.62	1.2000 E
97	30.82	2.8989	5.94	2.83	0.2400
98	31.14	2.8698	5.46	2.30	0.2117 D,F
99 100	31.54	2.8343	2.59	3.33	0.6487 C
100	32.06	2.7895	0.05	0.10	1.1179 F
102	32.26	2.7727	2.82	6.27	1.1179
103	32.44	2.7577	1.79	3.97	1.1179
104	32.66	2.7396	1.34	2.97	1.1179 B,C
105	32.90	2.7202	3.65	1.36	0.1879 0.1640 E
100	33.62	2.6636	0.59	0.26	0.1649 DEE
108	33.76	2.6528	1.44	0.47	0.1649 F
109	34.02	2.6332	0.05	0.10	0.9722 B
110	35.04	2.5588	50.45	48.10	0.4800 B,C,D,E,F
111	35.42	2.5322	28.60	17.63	0.3103 B,C,D,E
112	30.00	2.4002	110.92	00.27 11.31	0.2400 A, B, D, F 0.4400 B E E
114	37.68	2.3854	11.47	19.14	0.8400 D.E.F
115	37.86	2.3744	3.74	0.85	0.1144 B,C,D,F
116	38.76	2.3214	0.18	0.10	0.2800 B,C,D,E,F
117	39.02	2.3065	0.43	0.24	0.2800 C,E,F
118	39.48	2.2807	66.08	26.25	0.2000 A,C,F
120	40.32	2.2331	40. 34 2 78	∠0.00 3.30	0.2400 A, D, C, D, E, F 0.6131 BCDFF
121	41.06	2.1965	9.04	4.31	0.2400 C.D.E.F
122	41.36	2.1812	7.19	4.00	0.2800 B,C
123	41.76	2.1613	6.18	3.89	0.3169 C,E,F
124	42.08	2.1456	12.09	5.76	0.2400 C,D,E
1∠0 126	42.52 12 11	2.1244	0.04	45.12 7 88	0.2270 A,B,C,D,E,F 0.2569 B C E
127	44.06	2.0536	5.04	6.13	0.6129 B.C.D.F
128	44.32	2.0422	0.31	0.84	1.3723 E,F
129	44.64	2.0283	2.80	6.96	1.2535 B,E,F
130	45.00	2.0129	2.90	5.35	0.9304 D,F
101	40.04	1.9903	9.00	13.07	U.7000 U.F

132	45.84	1.9779	53.06	20.62	0.1956	A,C,D,E
133	46.28	1.9602	4.94	13.34	1.3600	B,D
134	46.82	1.9388	3.89	10.51	1.3600	B,C,D,E,F
135	47.50	1.9126	1.24	3.35	1.3600	B,C
136	48.38	1.8799	2.48	6.71	1.3600	D,F
137	48.72	1.8675	5.28	2.10	0.2000	B,C,D,E,F
138	49.14	1.8526	9.75	5.42	0.2800	E
139	49.44	1.8420	3.28	1.12	0.1725	B.C.F
140	50.12	1.8186	137.97	43.85	0.1600	A.B.C
141	50.64	1.8011	5.93	2.83	0.2400	A.C.E.F
142	51.52	1.7724	1.96	0.82	0.2116	B.E
143	52.18	1.7515	1.97	1.29	0.3306	B.D
144	52.42	1.7441	1.05	0.53	0.2523	D.F
145	52 76	1 7337	2 61	1 31	0 2523	D F
146	53.06	1 7246	1.66	1.83	0.5569	F F
147	53 28	1 7180	2 03	2 26	0.5608	BDFF
148	53 50	1 7114	3.07	3.02	0.0000	E,E,E,I
140	53.84	1 7014	9.06	6.48	0.3600	CDEE
150	54 36	1.6863	10.29	0.40 0.00	0.0000	BCDEE
150	54 90	1.6710	41.09	19.50	0.4400	
152	55 34	1.6588	22 47	16.13	0.2400	
152	56 22	1.6340	0.58	533	0.3014	
155	56.64	1.0349	9.56	15.33	1 1 2 0 6	D,C,D,E,F
104	56.02	1.0230	5.54	10.04	0.4264	PODEE
100	50.92	1.0104	0.60	4.70	0.4201	
100	57.14	1.0107	0.09	0.03	0.4020	
107	57.36	1.0040	3.08	4.72	0.7700	C,D,F
158	57.60	1.5989	7.39	3.52	0.2400	
159	57.80	1.5939	4.46	2.12	0.2400	B,C,E,F
160	58.10	1.5864	2.44	0.72	0.1493	C,D,F
101	58.46	1.5775	4.03	1.71	0.2139	B,C,D,E
162	58.82	1.5687	1.93	1.59	0.4162	B,C,D,F
163	59.12	1.5614	1.82	1.51	0.4162	B,D,E
164	59.26	1.5581	2.12	0.62	0.1462	C,D,E
165	59.66	1.5486	5.78	2.75	0.2400	A,C,D,E,F
166	60.02	1.5401	132.07	63.43	0.2418	B,C,F
167	60.88	1.5204	3.07	1.48	0.2418	B,C,D,E,F
168	61.46	1.5075	6.05	2.88	0.2400	B,C,D,E,F
169	62.04	1.4947	29.89	29.12	0.4904	B,C,D,E,F
170	62.48	1.4853	11.31	7.23	0.3219	B,C,D,E,F
171	63.14	1.4713	2.77	4.38	0.7977	B,C,D,E,F
172	64.06	1.4524	17.39	6.91	0.2000	A,B,C,D,E,F
173	64.56	1.4424	0.61	0.24	0.2000	C,D,F
174	64.94	1.4348	0.54	0.21	0.2000	B,C,D,E,F
175	65.78	1.4185	7.56	2.58	0.1717	A,C,D,E,F
176	66.44	1.4060	0.26	0.09	0.1717	B,C,E,F
177	66.76	1.4001	0.15	0.05	0.1717	B,C,D,E,F
178	67.32	1.3898	1.02	0.35	0.1717	B,C,E
179	67.82	1.3807	49.63	39.43	0.4000	A,B,E,F
180	68.26	1.3729	87.28	56.12	0.3237	A,B,C,D,E,F
181	69.36	1.3538	4.77	3.10	0.3266	B,C,D,E,F
182	69.80	1.3463	6.16	2.97	0.2424	С

Integrated Profile Areas

Based on calculated profile

Profile area	Counts	Amount
Overall diffraction profile	129687	100.00%
Background radiation	58589	45.18%
Diffraction peaks	71097	54.82%
Peak area belonging to selected phases	64956	50.09%
Peak area of phase A (Kaolinite)	5533	4.27%
Peak area of phase B (Quartz)	28497	21.97%
Peak area of phase C (Chlorite)	4416	3.40%
Peak area of phase D (Montmorillonite)	671	0.52%
Peak area of phase E (Illite)	23572	18.18%
Peak area of phase F (Dickite)	2268	1.75%
Unidentified peak area	6141	4.74%

Peak Residuals

Peak data	Counts	Amount
Overall peak intensity	1847	100.00%
Peak intensity belonging to selected phases	1740	94.22%
Unidentified peak intensity	107	5.78%

Diffraction Pattern Graphics



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Match! Phase Analysis Report

Sample: UHGZ-144-99-IA (2-70)

Sample Data

File name File path Data collected Data range Original data range Number of points Step size Rietveld refinement converged Alpha2 subtracted Background subtr. Data smoothed Radiation Wavelength UHGZ-144-99-IA.ORG D:/MAGANG PT. BSI/DATA XRD/UHGZ-144-99-IA Feb 16, 2024 19:24:26 2.000° - 70.000° 2.000° - 70.000° 3401 0.020 No No No Yes X-rays 1.540600 Å

Analysis Results

Elemental composition (Weight %)

Index	Amoun (%)	ntName	Formula sum	Element O	Amount (weight %) 51.0%(*)
Α	2.8	Sepiolite	H2 Mg2 O9 Si3	Si	36.2%
В	55.6	Quartz	O2 Si	AI	5.1%
С	0.9	Montmorillonite	Al0.86 Fe0.1 H Li0.08 Mg0.14 O10 Si3.9	Ca	2.5%
D	6.1	Kaolinite	Al2 H4 O9 Si2	Mg	1.8%
E	14.5	Illite	AI2 H2 K O12 Si4	Fe	1.6%
F	15.2	Epidote	Al2.09 Ca2 Fe0.91 H O13 Si3	ĸ	1.4%
G	5.0	Chlorite	H4 Mg3 O9 Si2		
	14.7	Unidentified peak a	area		
		,		*LE (sum)	51.3%

Amounts calculated by RIR (Reference Intensity Ratio) method

Details of identified phases

.....

A: Sepiolite (2.8 %)	
Formula sum	H2 Mg2 O9 Si3
Entry number	96-901-0150
Figure-of-Merit (FoM)	0.700396 [*]
Total number of peaks	499
Peaks in range	499
Peaks matched	480
Intensity scale factor	0.01
2theta correction	-0.004°
Space group	P 1 21/n 1
Crystal system	monoclinic
Unit cell	a= 23.4460 Å b= 11.3520 Å c= 5.2782 Å β= 89.060 °
l/lc	0.78
Calc. density	2.633 g/cm ³

Reference

B: Quartz (55.6 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

C: Montmorillonite (0.9 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

D: Kaolinite (6.1 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

E: Illite (14.5 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

F: Epidote (15.2 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor Post J. E., Bish D. L., Heaney P. J., "Synchrotron powder X-ray diffraction study of the structure and dehydrationbehavior of sepioliteSample: T = 742 K", American Mineralogist **92**, 91-97 (2007)

O2 Si 96-901-2601 0.858519* 70 18 18 0.92 -0.039° P 31 2 1 trigonal (hexagonal axes) a= 4.9140 Å c= 5.4060 Å 2.97 2.648 g/cm³ Hazen R. M., Finger L. W., Hemley R. J., Mao H. K., "High-pressure crystal chemistry and amorphization of alphaquartzSample: P = 1 bar", Solid State Communications **72**, 507-511 (1989)

Al0.86 Fe0.1 H Li0.08 Mg0.14 O10 Si3.9 96-901-0959 0.630554^{*} 301 106 100 0.03 0.056° C 1 2/m 1 monoclinic a= 5.1710 Å b= 8.9570 Å c= 9.7400 Å β= 96.100 ° 5.00 2.245 g/cm³ Gournis D., Lappas A., Karakassides M. A., Tobbens D., Moukarika A., "A neutron diffraction study of alkali cation migration in montmorillonitesSample: Li-mont-300", Physics and Chemistry of Minerals **35**, 49-58 (2008)

Al2 H4 O9 Si2 96-900-9235 0.722773^{*} 253 145 135 0.03 -0.011° C 1 triclinic (anorthic) a = 5.1535 Å b= 8.9419 Å c= 7.3906 Å α = 91.926° β = 105.046 ° γ = 89.797 ° 0.97 2.608 g/cm³ Bish D. L., "Rietveld refinement of the kaolinite structure at 1.5 KNote: sample at T = 1.5 K", Clays and Clay Minerals **41**, 738-744 (1993)

Al2 H2 K O12 Si4 96-901-3733 0.734081 303 113 105 0.05 -0.028° C121 monoclinic a= 5.1973 Å b= 8.9990 Å c= 10.1470 Å β= 99.000 ° 0.67 2.830 g/cm3 Drits V. A., Zviagina B. B., McCarty D. K., Salyn A. L., "Factors responsible for crystal-chemical variations in the solid solutionsfrom illite to aluminoceladonite and from glauconite to celadoniteSample Name: 10564", American Mineralogist 95, 348-361 (2010)

Al2.09 Ca2 Fe0.91 H O13 Si3 96-901-6200 0.643890^{*} 499 238 221 0.07

2theta correction 0.031° P 1 21/m 1 Space group Crystal system monoclinic a= 8.8902 Å b= 5.6366 Å c= 10.1600 Å β= 115.432 ° Unit cell l/lc 0.85 Calc. density 3.472 g/cm³ Reference Nagashima M., Akasada M., "X-ray Rietveld and 57Fe Mossbauer studies of epidote and piemontite on the joinCa2Al2FeSi3O12(OH) - Ca2Al2MnSi3O12(OH) formed by hydrothermal synthesisSample: q=1.0, run 41", American Mineralogist 95, 1237-1246 (2010) G: Chlorite (5.0 %)* Formula sum H4 Mg3 O9 Si2 96-900-0159 Entry number Figure-of-Merit (FoM) 0.684593 Total number of peaks 91 Peaks in range 91 Peaks matched 85 Intensity scale factor 0.02 0.002° 2theta correction Space group C 1 Crystal system triclinic (anorthic) a= 5.3350 Å b= 9.2400 Å c= 28.7350 Å α= 90.000° β= 90.000 ° γ= 90.000 ° Unit cell l/lc 0.81 2.599 g/cm³ Calc. density Lister J. S., Bailey S. W., "Chlorite polytypism: IV. Regular two-layer structuresrefined structure", American Reference Mineralogist 52, 1614-1631 (1967)

^(*)2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the active search-match option 'Automatic zero point adaption'.

Search-Match

Settings

COD-Inorg 2023.12.05
Yes
Yes
0.60
0.30 deg.
0
0.50
0.50
0.50

Selection Criteria

Elements:

Elements of which at least one must be present:	H, Li, O, Na, Mg, Al, Si, S, K, Ca, Fe, Ni, Cs
Elements that must NOT be present:	All elements not mentioned above

Peak List

No.	2theta [°]	d [Å]	l/l0 (peak height)	Counts (peak area)	FWHM	Matched
1	2.16	40.8681	186.03	45.17	0.2400	
2	2.26	39.0600	0.19	0.10	0.5234	
3	2.60	33.9529	146.79	77.73	0.5234	
4	2.88	30.6525	141.28	74.81	0.5234	
5	3.16	27.9370	135.04	71.51	0.5234	G
6	3.18	27.7614	0.04	0.02	0.5234	
7	3.18	27.7614	0.93	0.49	0.5234	
8	3.18	27.7614	0.30	0.16	0.5234	
9	3.18	27.7614	0.93	0.49	0.5234	
10	3.44	25.6637	6.60	1.07	0.1600	
11	3.56	24.7989	11.41	2.31	0.2000	
12	3.84	22.9913	3.90	0.61	0.1538	
13	4.02	21.9622	8.35	1.10	0.1300	
14	4.32	20.4377	8.47	1.09	0.1271	
15	4.68	18.8663	13.06	1.56	0.1178	
16	5.06	17.4503	8.09	1.32	0.1611	
17	5.26	16.7872	6.59	0.79	0.1189	
18	5.52	15.9971	6.17	0.50	0.0798	
19	6.08	14.5249	0.35	0.10	0.2800	G
20	6.36	13.8860	7.26	0.88	0.1200	
21	6.70	13.1821	11.89	3.78	0.3140	
22	6.86	12.8750	5.29	1.09	0.2038	
23	7.32	12.0669	10.03	1.12	0.1102	
24	7.66	11.5321	5.14	0.71	0.1370	А
25	8.10	10.9066	0.35	0.10	0.2800	
26	8.42	10.4928	5.52	1.57	0.2800	
27	8.62	10.2498	20.16	4.52	0.2216	A,E

20	0.00	0 7064	E O1	1 70	0 2020	$\sim \sim$
20 00	9.02	9.1901	0.94	1.70	0.2032	0,0
29	9.72	9.0922	0.12	0.10	0.7926	F
30	10.12	8.7337	0.35	0.10	0.2800	
31	10.58	8.3550	0.13	0.04	0.2800	
32	10.00	8 1402	0.35	0.04	0.2800	٨
32	10.00	0.1402	0.35	0.10	0.2600	A
33	11.10	7.9647	0.35	0.10	0.2800	F
34	11.52	7.6752	0.35	0.10	0.2800	
35	11.78	7.5064	0.62	0.62	0.9776	
36	12.24	7 2253	50.13	21.33	0 3565	DG
30	12.24	7.2255	0.47	21.33	0.3505	D,G
37	12.96	6.8255	0.17	0.10	0.5838	
38	13.36	6.6220	5.50	3.25	0.5838	
39	13.82	6.4026	1.91	1.13	0.5838	Α
40	14 20	6 2321	0.95	0.56	0 5838	
44	14.60	6.0540	0.00	0.00	0.5000	
41	14.02	6.0540	0.80	0.47	0.5636	
42	14.94	5.9251	1.89	1.11	0.5838	A
43	15.36	5.7640	1.54	0.91	0.5838	G
44	15.60	5.6758	1.86	1.10	0.5838	Α
15	15.86	5 5834	3.07	1.81	0 5838	Λ
40	10.00	5.3034	3.07	1.01	0.5050	~
40	16.38	5.4073	1.70	1.00	0.5838	
47	16.68	5.3107	0.03	0.02	0.5838	
48	16.88	5.2482	2.45	1.45	0.5838	
49	17 14	5 1692	0.35	0.10	0 2800	Δ
50	17.14	5 0570	6.00	5 17	0.2000	
50	17.52	5.0579	0.00	5.17	0.0435	A,F
51	17.84	4.9679	11.75	2.31	0.1946	E
52	18.18	4.8758	2.56	0.50	0.1946	С
53	18.52	4.7870	0.35	0.10	0.2800	A.F.G
54	18 94	4 6818	2.83	0.67	0 2338	Δ
55	10.04	4.5765	2.00	0.07	0.2000	
55	19.38	4.5765	4.11	2.11	0.0005	A,F,G
56	19.92	4.4536	41.24	18.08	0.4334	A,C,D,E,F
57	20.30	4.3711	26.70	37.81	1.4000	A,D,G
58	20.86	4 2550	240 94	63 16	0 2591	BCF
50	21.00	1 1226	5 74	1 76	0.2026	
09	21.40	4.1550	5.74	1.70	0.3020	A,D,G
60	21.76	4.0810	13.31	3.77	0.2800	A,C,E,G
61	22.08	4.0226	7.70	6.54	0.8400	F
62	22.30	3.9834	6.10	5.18	0.8400	F
63	22 70	3 9141	8 24	1.67	0 2000	A C
00	22.70	0.0141	0.24	0.40	0.2000	
64	22.90	3.8804	0.35	0.10	0.2800	A,E,G
65	23.20	3.8309	8.99	10.91	1.2000	A,D
66	23.38	3.8018	9.81	3.57	0.3600	A,F
67	23 94	3 7141	8 73	2.83	0.3200	ADE
60	24.22	2 6560	4 01	6.74	1 2567	, (, D, , i
00	24.32	3.0509	4.91	0.74	1.5507	A
69	24.90	3.5730	78.94	23.87	0.2989	A,D,E,F,G
70	25.64	3.4716	19.91	6.56	0.3257	A,C,F
71	26.68	3.3385	1000.00	248.10	0.2452	A,B,D,E,G
72	27.34	3 2594	13.01	8 95	0 6800	ACE
72	27.04	2 1009	14 56	7.07	0.0000	
13	27.94	3.1900	14.50	7.07	0.4600	A,F,G
74	28.48	3.1315	140.02	25.64	0.1810	C,D,E
75	29.06	3.0703	7.09	1.72	0.2400	A,D,F,G
76	29.36	3.0396	10.66	2.49	0.2313	Α
77	20.06	2 0801	11 30	1 02	0 4302	Δ
70	20.00	2.3001	7.07	4.02	0.4002	
78	30.28	2.9493	1.87	1.07	0.1345	A,F
79	30.76	2.9044	0.27	0.04	0.1345	F
80	31.00	2.8824	0.83	0.11	0.1345	A,G
81	31.24	2,8608	7,92	1.22	0.1520	AF
82	31 / 2	2.8440	1 17	0.48	0.1060	
02	31.42	2.0449	4.47	0.40	0.1009	A,D,G
83	31.74	2.8169	0.32	0.03	0.1069	A,⊢
84	32.00	2.7946	5.54	1.03	0.1839	F
85	32.32	2.7677	2.03	0.30	0.1467	A,F
86	33.02	2,7106	191.22	41.56	0.2148	AF
87	34.20	2 6107	0.35	0.10	0.2800	ACG
07	04.20	2.0197	0.00	0.10	0.2000	
88	34.64	2.5874	11.26	2.74	0.2400	A,C,E,F
89	35.06	2.5574	51.70	15.69	0.2999	A,C,D,E,G
90	35.80	2.5062	13.76	6.67	0.4791	A,C,D,E,F,G
91	36.00	2 4927	16.99	4 13	0 2400	AD
02	36.60	2.4527	132.20	20.20	0.2762	ABCEEC
92	30.00	2.4032	132.29	30.20	0.2203	A,D,C,E,F,G
93	37.12	2.4201	149.26	33.09	0.2191	A,C,F,G
94	37.72	2.3829	16.97	8.93	0.5200	A,C,D,E,F,G
95	38.12	2,3588	9.76	1.98	0.2000	AD
06	38 72	2 3 2 3 7	24.85	10.12	0.4026	
90	30.72	2.3237	24.00	10.12	0.4020	A,C,D,E,F,G
97	39.50	2.2796	61.01	13.75	0.2227	A,B,D,F,G
98	40.34	2.2340	48.52	11.78	0.2400 <i>A</i>	,B,C,D,E,F,G
99	40.82	2.2088	122.46	28.27	0.2282	A,C,D.E.G
100	41 24	2 1872	1 85	0.54	0 2872	
100	41.24	2.10/3		0.04	0.2012	
101	41.92	2.1534	7.19	3.00	0.5029	
102	42.12	2.1436	5.93	2.73	0.4546	A,E,F,G
103	42.48	2.1263	98.32	20.84	0.2095 <i>A</i>	,B,C,D,E.F.G
104	42 88	2 1074	2 56	0.54	0 2095	ACDEE
105	12.00	2.1074	2.00	0.04	0 1764	
00	43.32	2.00/0	3.33	0.03	0.1764	A,D,G
106	43.64	2.0724	4.75	1.31	0.2714	A,C,D,E,F
107	44.06	2.0536	4.18	1.14	0.2698	A,C,D,E,F,G
108	44 48	2,0352	1.49	0.41	0.2698	A.C.F
100	11.10	2 0154	2 00	1 50	0 5000	
109	44.94	2.0154	2.99	1.58	0.0223	
110	45.44	1.9944	21.61	7.00	0.3200	A.D.E.F.G

111	45.86	1.9771	63.93	15.76	0.2437 A,B,D,E,F
112	46.20	1.9634	4.49	1.08	0.2389 A,C,F,G
113	46.72	1.9427	7.16	2.78	0.3835 A,D,E,F,G
114	46.92	1.9349	1.48	0.40	0.2660 A,C,D,E,F
115	47.46	1.9141	107.71	23.58	0.2163 A,C,D,F,G
116	48.10	1.8902	7.35	1.56	0.2098 A,D,E,F
117	48.18	1.8872	0.52	0.13	0.2444 A,F
118	48.54	1.8740	2.32	0.57	0.2444 A,E,F,G
119	48.72	1.8075	3.87	0.00	0.10// A,C,D,E,F,G
120	49.06	1.0047	0.01	1.90	0.2070 A,F
121	49.00	1.0370	2.14	0.93	0.4279 A,C,D,E,F
122	50.10	1 7001	3 37	20.34	0.2230 A,D,C,D
123	50.70	1 7906	5 55	2.07	0.3687 Δ F F
125	51.08	1 7867	0.31	0.10	0.3200 D
126	51.30	1 7795	2 14	0.30	0.1376 ACEG
127	51.50	1.7731	0.47	0.07	0.1376 A.F
128	51.98	1.7578	1.15	0.20	0.1734 A.C.F
129	52.20	1.7509	2.42	0.47	0.1933 A.E
130	52.54	1.7404	5.31	1.29	0.2408 A,E,F
131	52.82	1.7318	3.40	0.79	0.2301 A,E,F
132	53.10	1.7233	2.61	0.71	0.2676 A,C,F
133	53.44	1.7132	1.53	0.41	0.2676 A,D,E,F
134	54.06	1.6950	3.64	2.68	0.7259 A,C,D,E,F
135	54.38	1.6858	10.03	2.96	0.2915 A,C,D,E,F
136	54.54	1.6812	0.33	0.10	0.3027 A,C,D,E
137	54.92	1.6705	52.91	14.99	0.2800 A,B,D,E,F
138	55.36	1.6582	11.93	7.90	0.6543 A,B,C,D,E,F
139	55.76	1.6473	14.15	12.08	0.8435 A,D,E,F
140	55.98	1.6413	13.11	6.50	0.4903 A,C,D,E,F
141	50.34	1.0317	203.70	49.00	0.2419 A,C,D,E,F
142	57.26	1.0190	9.02	12.07	1.2400 A,C,D,E,F
143	57.56	1.0070	5.99	1.85	0.3000 A,D,D,E,F
145	57 92	1 5909	7.09	1.00	0.3000 A,D,L,I 0.1587 A C D F
146	58.32	1.5809	3.08	0.49	0.1587 ACDEE
147	58 56	1.5750	4 28	0.40	0.1435 ACDEE
148	59.02	1.5638	50.29	9.54	0.1875 A.C.D.E
149	59.58	1.5505	7.08	10.60	1.4800 A,D,E
150	60.02	1.5401	125.78	40.72	0.3200 A,B,C,D,F
151	60.86	1.5209	0.35	0.10	0.2800 A,C,D,E,F
152	61.72	1.5017	50.59	16.84	0.3290 A,D,E,F
153	62.38	1.4874	17.30	7.80	0.4458 A,C,D,E
154	62.82	1.4781	0.61	0.47	0.7663 A,C,E,F
155	63.04	1.4734	0.27	0.10	0.3600 A,C,D,E
156	63.40	1.4659	2.97	1.08	0.3600 A,C,D,F
157	63.68	1.4601	4.56	1.66	0.3600 A,C,D,E,F
158	64.04	1.4528	14.91	5.43	0.3600 A,B,C,D,F
159	64.28	1.4480	70.75	14.32	0.2000 A,C,D,E,F
160	64.8Z	1.4372	3.05	0.74	0.2000 A,C,D,E,F
101	65.36	1.4313	3.91	0.47	0.1100 C,D,E,F
162	65.82	1.4200	6 16	1 10	0.2047 C,D 0.1011 BDEE
164	66 18	1 4109	2 32	0.21	0.0907 C.D.F
165	66 40	1 4068	0.26	0.02	0.0907 D.F
166	66.72	1.4008	0.35	0.10	0.2800 C.D.E.F
167	67.32	1.3898	1.72	0.49	0.2800 D.F
168	67.76	1.3818	59.08	14.35	0.2400 B,C,F
169	68.16	1.3747	65.12	18.45	0.2800 B,D,E,F
170	68.32	1.3718	51.71	10.43	0.1994 B,C,D,E,F
171	69.08	1.3586	6.03	1.98	0.3250 C,D,E,F
172	69.50	1.3514	12.47	5.36	0.4252 C,D,F
173	69.68	1.3484	14.04	9.09	0.6400 F
174	69.96	1.3436	11.95	0.97	0.0800 D,F

Integrated Profile Areas

Based on calculated profile

Profile area	Counts	Amount
Overall diffraction profile	105727	100.00%
Background radiation	57265	54.16%
Diffraction peaks	48461	45.84%
Peak area belonging to selected phases	32924	31.14%
Peak area of phase A (Kaolinite)	2023	1.91%
Peak area of phase B (Sepiolite)	938	0.89%
Peak area of phase C (Montmorillonite)	365	0.35%
Peak area of phase D (Quartz)	19337	18.29%
Peak area of phase E (Illite)	5438	5.14%
Peak area of phase F (Epidote)	3675	3.48%
Peak area of phase G (Chlorite)	1147	1.09%
Unidentified peak area	15538	14.70%

Peak Residuals

Peak data	Counts	Amount
Overall peak intensity	1463	100.00%
Peak intensity belonging to selected phases	1362	93.07%
Unidentified peak intensity	101	6.93%

Diffraction Pattern Graphics

Match! Copyright © 2003-2024 CRYSTAL IMPACT, Bonn, Germany

Match! Phase Analysis Report

Sample: UHGZ-143-35-AR (2-70)

Sample Data

File name File path Data collected Data range Original data range Number of points Step size Rietveld refinement converged Alpha2 subtracted Background subtr. Data smoothed Radiation Wavelength UHGZ-143-35-AR.ORG D:/MAGANG PT. BSI/DATA XRD/UHGZ-143-35-AR Feb 16, 2024 19:24:26 2.000° - 70.000° 2.000° - 70.000° 3401 0.020 No No No Yes X-rays 1.540600 Å

Analysis Results

Index	Amoun (%)	tName	Formula sum	Element O	Amount (weight %) 53.2%(*)
Α	70.3	Silicon oxide Quartz	O2 Si	Si	39.5%
В	1.0	Kaolinite	AI2 H4 O9 Si2	AI	5.1%
С	8.1	Illite	AI2 H2 K O12 Si4	Mg	0.8%
D	17.1	Dickite	AI2 H4 O9 Si2	ĸ	0.8%
E	3.5	Clinochlore	Al0.721 Fe0.219 H4 Mg2.782 O9 Si1.279		
	11.6	Unidentified peak are	a	Fe	0.2%
Amoui	nts calc	ulated by RIR (Referer	nce Intensity Ratio) method	*LE (sum)	53.6%

Details of identified phases

A: Silicon oxide Quartz (70.3 %) [*]	
Formula sum	O2 Si
Entry number	96-500-0036
Figure-of-Merit (FoM)	0.848069 [*]
Total number of peaks	70
Peaks in range	18
Peaks matched	18
Intensity scale factor	0.88
2theta correction	0.011°
Space group	P 32 2 1
Crystal system	trigonal (hexagonal axes)
Unit cell	a= 4.9124 Å c= 5.4039 Å
l/lc	2.92
Calc. density	2.650 g/cm³
Reference	Will G, Bellotto M, Parrish W, Hart M, "Crystal structures of quartz and magnesium germanate by profileanalysis of synchrotron-radiation high-resolution powder data.", Journal of Applied Crystallography 21 , 182-191 (1988)

*B: Kaolinite (1.0 %)** Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell *I/Ic* Calc. density Reference

C: Illite (8.1 %)^{*}

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference

D: Dickite (17.1 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference Al2 H4 O9 Si2 96-155-0599 0.664220^{*} 254 143 115 0.00 -0.040° P 1 triclinic (anorthic) a= 5.1737 Å b= 8.9850 Å c= 7.3522 Å α= 91.684° β= 105.128 ° γ= 89.755 ° 0.74 2.599 g/cm³ Richard D., Rendtorff N. M., "First principles study of structural properties and electric fieldgradients in kaolinite", Applied Clay Science **169**, 67-73 (2019)

Al2 H2 K O12 Si4 96-901-3733 0.674222 303 113 89 0.02 -0.055° C121 monoclinic a= 5.1973 Å b= 8.9990 Å c= 10.1470 Å β= 99.000 ° 0.67 2.830 g/cm3 Drits V. A., Zviagina B. B., McCarty D. K., Salyn A. L., "Factors responsible for crystal-chemical variations in the solid solutionsfrom illite to aluminoceladonite and from glauconite to celadoniteSample Name: 10564", American Mineralogist 95, 348-361 (2010)

Al2 H4 O9 Si2 96-900-3082 0.687406^{*} 289 142 120 0.07 -0.022° C 1 c 1 monoclinic a= 5.1610 Å b= 8.9600 Å c= 14.4590 Å β = 96.770 ° 0.97 2.583 g/cm³ Dera P., Prewitt C. T., Japel S., Bish D. L., Johnston C. T., "Pressure-controlled polytypism in hydrous layered materialsSample: Low pressure dickite at P = 0.1 MPa", American Mineralogist **88**, 1428-1435 (2003)

E: Clinochlore (3.5 %)*

Formula sum Entry number Figure-of-Merit (FoM) Total number of peaks Peaks in range Peaks matched Intensity scale factor 2theta correction Space group Crystal system Unit cell I/Ic Calc. density Reference Al0.721 Fe0.219 H4 Mg2.782 O9 Si1.279 96-901-3854 0.652485^{*} 253 253 213 0.01 0.019° C -1 triclinic (anorthic) a= 5.3454 Å b= 9.2584 Å c= 14.4350 Å α = 90.290° β= 97.280° γ= 90.000° 0.75 2.655 g/cm³ Zanazzi P. F., Comodi P., Nazzareni S., Andreozzi G. B., "Thermal behaviou

Reference Zanazzi P. F., Comodi P., Nazzareni S., Andreozzi G. B., "Thermal behaviour of chlorite: an in situ single-crystaland powder diffraction studyNote: T = 301 C", European Journal of Mineralogy **21**, 581-589 (2009) ^(*)2theta values have been shifted internally for the calculation of the amounts, the intensity scaling factors as well as the figure-of-merit (FoM), due to the

active search-match option 'Automatic zero point adaption'.

Search-Match

SettingsReference database usedCOD-Inorg 2023.12.05Automatic zeropoint adaptationYesDowngrade entries with low scaling factors YesMinimum figure-of-merit (FoM)0.602theta window for peak corr.0.30 deg.Minimum rel. int. for peak corr.0Parameter/influence 2theta0.50

Parameter/influence intensities	0.50
Parameter multiple/single phase(s)	0.50

Selection Criteria

Elements:

Elements of which at least one must be present:	H, Li, N, O, Na, Mg, Al, Si, K, Ca, Fe, Ni, As, Cs, Ba
Elements that must NOT be present:	All elements not mentioned above

Peak List

Description Description Description Description Description 1 2.06 42.851 0.05 0.10 1.1409 2 2.32 38.0300 0.05 0.10 1.1409 4 3.06 24.5234 1.64 0.84 0.2800 5 4.04 21.8535 0.19 0.10 0.2800 6 4.34 20.3435 0.19 0.10 0.2800 7 4.86 18.1680 0.19 0.10 0.2800 9 5.34 1.64743 1.85 0.95 0.2200 16 6.43 13.6292 10.40 8.13 0.4249 11 6.76 13.0266 5.44 7.76 0.775 12 7.08 12.4754 20.28 11.670 0.2800 14 7.96 11.0981 0.19 0.10 0.2800 17 10.68 8.2769 2.57 0.79 0.1663 C <	No	2thota 1º1	d [Å]	1/10 (nosk boight)	Counts (noak aroa)		Matchod
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1	2.06	42 8518			0.2800	Watcheu
2 2.22 36.000 0.00 0.10 1.100 4 3.60 224.5234 1.64 0.84 0.2800 5 4.04 21.6535 0.19 0.10 0.2800 6 4.34 20.3435 0.19 0.10 0.2800 7 4.66 16.164743 1.85 0.95 0.2200 8 5.36 16.4743 1.85 0.95 0.2200 9 5.34 14.8669 4.52 2.26 0.2718 E 10 6.48 13.6292 10.40 8.13 0.4249 1.16.75 11 6.75 13.056 5.544 7.72 0.300 1.4 14 7.96 11.0981 0.19 0.10 0.2800 1.17 15.0 5.7122 0.19 0.10 0.2800 1.17 0.668 2.769 2.57 0.79 0.1663 L 12 17.02 5.2054 1.75 0.90 0.2	1 2	2.00	42.0010	1.31	0.07	0.2000	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2	2.32	28,0500	0.05	0.10	0.2900	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1	3.00	20.0023	0.13	0.10	0.2000	
3 4.04 21.03.0 0.19 0.10 0.2800 7 4.86 18.1680 0.19 0.10 0.2800 9 5.94 14.6669 4.52 2.26 0.2718 E 10 6.48 13.6292 10.40 8.13 0.4249 11 6.78 13.0268 5.44 7.72 0.3306 13 7.56 11.6844 7.21 4.25 0.3200 14 7.66 11.0981 0.19 0.10 0.2800 15 8.92 9.9057 5.94 1.82 0.1663 B.D.E 19 13.50 6.5537 1.39 0.70 0.4164 18 12.27 7.7786 44.61 33.36 0.4003 B.D.E 21 17.02 5.2054 1.75 0.90 0.22800 21 17.02 5.2054 1.75 0.90 0.22800 22 17.78 4.9845 10.50 8.88 0.4290 2.57 22 17.78 4.9845 10.50 0.221	4	3.00	24.0204	1.04	0.04	0.2800	
0 4.34 2.0.450 0.19 0.10 0.2800 8 5.36 16.4743 1.85 0.95 0.2800 P 9 5.94 14.8669 4.52 2.26 0.2718 E 10 6.48 13.6292 10.40 8.13 0.4249 11 6.78 13.0268 5.44 7.76 0.7752 12 7.08 12.4754 20.28 12.72 0.3408 14 7.96 11.0981 0.19 0.10 0.2800 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0181 0.19 0.10 0.2800 2 15 5.0 5.7122 0.19 0.10 0.2800 2 21 17.02 5.2054 1.75 0.90 0.2800 2 21 17.78 4.9845 10.50 8.8 0.4595 C 23 18.14 4.8	5	4.04	21.0000	0.19	0.10	0.2800	
i 4.86 10.160 0.19 0.10 0.200 g 5.94 14.8669 4.52 2.26 0.2718 E 10 6.48 13.0228 5.44 7.76 0.7752 11 6.78 13.0228 5.44 7.76 0.7752 12 7.08 12.4754 20.28 12.72 0.3408 13 7.56 11.6844 7.21 4.25 0.3200 14 7.96 11.0981 0.19 0.10 0.2800 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0161 0.19 0.10 0.2800 0 17 10.68 8.2769 2.57 0.79 0.1663 18 12.32 7.178 44.81 3.36 0.4063 B.D.E 20 15.0 5.7122 0.19 0.10 0.2800 0 21 17.02 5.2054 1.75 0.90 0.2800 C 23 18.14 4.864 3.6	0	4.34	20.3433	0.19	0.10	0.2000	
a 5.30 10.473 1.63 0.33 0.230 E 9 5.34 14.6669 4.52 2.26 0.2718 E 10 6.48 13.6292 10.40 8.13 0.4249 1 12 7.08 12.4754 20.28 12.72 0.3406 14 7.96 11.0981 0.19 0.10 0.2800 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0181 0.19 0.10 0.2800 0.2800 21 17.78 4.9845 10.50 8.88 0.4955 C 22 17.78 4.9845 10.50 8.88 0.4595 C 22 17.78 4.9845 10.50 0.2212 C 0.200 0.2212 21 17.78 4.9845 10.50 0.3614 B.C.D.E E 22 20.00 4.4360 7521 50.02 0.3614	0	4.00	16.1000	0.19	0.10	0.2000	
9 3.94 14,0009 4.52 2.26 0.2716 E 10 6.48 13,0268 5.44 7.76 0.7752 11 6.78 13,0268 5.44 7.76 0.7752 13 7.56 11,0844 7.21 4.25 0.3200 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0181 0.19 0.10 0.2800 C 17 10.68 8.2769 2.57 0.79 0.1663 B.D.E 19 13.50 6.5537 1.39 1.07 0.4164 200 21 17.02 5.2054 1.75 0.90 0.2800 C 23 18.14 4.8664 3.69 1.50 0.2212 C 24 18.72 4.7363 0.87 0.12 0.0745 E 25 20.00 4.4360 75.21 50.02 0.3614 B.C.DE	0	5.50	10.4743	1.00	0.90	0.2000	–
10 0.48 13.0282 10.40 6.13 0.4249 11 6.78 13.0268 5.44 7.76 0.7752 12 7.08 12.4754 20.28 12.72 0.3408 13 7.56 11.6844 7.21 4.25 0.3200 14 7.96 11.0841 0.19 0.10 0.2800 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0181 0.19 0.10 0.2800 0 10 15.50 5.7122 0.19 0.10 0.2800 0 21 17.02 5.2054 1.75 0.90 0.2800 0 21 17.78 4.9865 10.50 0.2212 0.3614 E.C.DE 22 20.00 4.4360 7521 50.02 0.3614 E.C.DE 26 20.62 4.2631 22944 14205 0.3644 A.C.D.E 27 <td< td=""><td>10</td><td>5.94</td><td>14.0009</td><td>4.02</td><td>2.20</td><td>0.2710</td><td>E</td></td<>	10	5.94	14.0009	4.02	2.20	0.2710	E
11 0.16 13.0260 3.44 1.76 0.1732 12 7.08 12.4754 20.28 1.272 0.3408 13 7.56 11.6844 7.21 4.25 0.3200 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0181 0.19 0.10 0.2800 17 10.68 8.2769 2.57 0.79 0.1663 C 18 12.32 7.1786 44.61 3.36 0.405 B.D.E 19 13.50 6.5537 1.39 1.07 0.4164 20 15.50 5.7122 0.19 0.10 0.2800 21 17.72 4.9845 10.50 8.88 0.4595 C 23 18.14 4.8664 3.69 1.50 0.2212 2 24 18.72 5.84 1.146 8.55 16.39 0.4600 C,DE 29 21.84 4.0406 13.63 36.13 1.4400 E 21.92 <t< td=""><td>10</td><td>0.40</td><td>13.0292</td><td>10.40 E 44</td><td>0.13</td><td>0.4249</td><td></td></t<>	10	0.40	13.0292	10.40 E 44	0.13	0.4249	
12 7.56 11.247.04 20.25 12.12 0.3408 14 7.96 11.0981 0.19 0.10 0.2800 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0181 0.19 0.10 0.2800 17 10.68 8.2769 2.57 0.79 0.1663 18 12.32 7.1786 44.61 3.336 0.4063 B.D.E 20 15.50 5.7122 0.19 0.10 0.2800 2 21 17.78 4.9845 10.50 8.88 0.4595 C 23 18.14 4.8664 3.69 1.50 0.2212 C 2.60.0 4.4360 75.21 50.02 0.3614 B.C.D.E 24 18.72 4.7363 0.877 1.24.05 0.3364 A.C.D.E 29 21.88 4.1146 18.55 16.39 0.4800 C.D.E 29 21.88 <td>10</td> <td>0.70</td> <td>13.0200</td> <td>0.44 20.20</td> <td>1.70</td> <td>0.7752</td> <td></td>	10	0.70	13.0200	0.44 20.20	1.70	0.7752	
13 7.30 11.0044 7.21 4.23 0.3200 14 7.36 11.0981 0.19 0.10 0.2800 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0181 0.19 0.10 0.2800 17 10.68 8.2769 2.57 0.79 0.1663 B.D.E 18 12.32 7.1786 44.61 3.336 0.4063 B.D.E 20 15.50 5.7122 0.19 0.10 0.2800 221 21 17.78 4.9645 10.50 8.88 0.4595 C 23 18.14 4.8664 3.69 1.50 0.2212 C 24 18.72 4.7363 0.87 0.12 0.0745 E 25 20.00 4.4360 75.21 50.02 0.3614 B.C.D.E 28 21.58 4.1146 18.55 16.39 0.4800 C.D.E 29 21.98 4.0406 13.63 36.13 1.4400 E	12	7.00	12.4704	20.20	12.12	0.3400	
1+ 1.30 1.0.19 0.10 0.200 15 8.92 9.9057 5.94 1.82 0.1663 C 16 9.80 9.0181 0.19 0.10 0.2800 1663 17 10.68 8.2769 2.57 0.79 0.1663 B.D.E 19 13.50 6.5537 1.39 1.07 0.4164 20 15.50 5.7122 0.19 0.10 0.2800 22 21 17.70 4.9845 10.50 8.88 0.4595 C 23 18.14 4.8864 3.69 1.50 0.2210 7 24 18.72 4.7363 0.87 0.12 0.0745 E E 25 20.00 4.4360 75.21 50.02 0.3614 B.C.D.E 26 2.82 4.2631 29.44 142.05 0.364 A.C.D.E B 27 2.136 4.1565 7.83 13.39 0.2906 B B 28 2.158 4.0406 13.63 36.13 1.4400 E 33 2.348 3.7858 10.066	14	7.50	11.0044	0.10	4.23	0.3200	
13 0.32 3.001 0.34 1.02 0.100 C 16 9.80 9.0181 0.19 0.10 0.2200 17 10.68 8.2769 2.57 0.79 0.1663 B.D.E 18 12.32 7.1786 44.61 3.336 0.4063 B.D.E 19 13.50 6.5537 1.39 1.07 0.4164 20 15.50 5.7122 0.19 0.10 0.2800 21 17.02 5.2054 1.75 0.90 0.2800 22 17.78 4.9845 10.50 8.88 0.4595 C 23 18.14 4.8864 3.69 1.50 0.2212 E 26 20.00 4.4330 75.21 50.02 0.3614 B.C.D.E 27 21.64 4.1655 7.83 13.39 0.4800 C.D.E 29 21.98 4.1466 18.55 16.39 0.4800 C.D.E <	14	7.90	0.0057	5.04	1.02	0.2000	C
10 5.60 5.71 0.19 0.100 0.2000 17 10.68 8.2769 2.57 0.79 0.1663 18 12.32 7.1786 44.61 33.36 0.4063 B.D.E 19 13.50 6.5537 1.39 1.07 0.4164 20 15.50 5.7122 0.19 0.10 0.2800 22 17.78 4.9845 10.50 8.88 0.4595 C 23 18.14 4.8864 3.69 1.50 0.2212 E 24 18.72 4.7363 0.87 0.12 0.0745 E 25 20.00 4.4360 75.21 50.02 0.3614 A.C.D.E 27 21.36 4.1565 7.83 13.39 0.9296 B.C.D.E 29 21.98 4.0406 13.63 36.13 1.4400 E 31 2.292 3.8770 8.67 12.74 0.7982 C.E <t< td=""><td>10</td><td>0.92</td><td>9.9057</td><td>0.94</td><td>1.02</td><td>0.1003</td><td>C</td></t<>	10	0.92	9.9057	0.94	1.02	0.1003	C
	10	9.00	9.0101	0.19	0.10	0.2000	
10 12.52 1.7160 144.01 33.30 0.4164 20 15.50 6.57122 0.19 0.10 0.2800 21 17.02 5.2054 1.75 0.90 0.2800 22 17.76 4.9845 10.50 8.88 0.4595 C 23 18.14 4.8864 3.69 1.50 0.2212 C 24 18.72 4.7363 0.87 0.12 0.0745 E 25 20.00 4.4360 75.21 50.02 0.3614 B.C.D.E 27 21.36 4.1565 7.83 13.39 0.9296 B 28 21.58 4.1146 18.55 16.39 0.4400 C,D.E 30 22.42 3.9623 11.32 5.83 0.2800 D 31 22.92 3.8710 8.67 12.74 0.7982 C,E 32 23.18 3.8341 3.88 2.32 0.3252 B 33 23.44 3.7858 10.06 5.18 0.2800 D	10	10.00	0.2709	2.07	0.79	0.1003	BDE
15 15.50 5.7122 0.19 0.10 0.2800 21 17.02 5.2054 1.75 0.90 0.2800 21 17.02 5.2054 1.75 0.90 0.2800 22 17.78 4.9845 10.50 8.88 0.4595 C 23 18.14 4.8664 3.69 1.50 0.2212 2 24 18.72 4.7363 0.87 0.12 0.0745 E 25 20.00 4.4360 75.21 50.0.3614 B,C,D,E 27 21.36 4.1665 7.83 13.39 0.4200 C,D <e< td=""> 29 21.98 4.0406 13.63 36.13 1.4400 E 30 22.42 3.8631 3.88 2.32 0.3282 B 31 22.92 3.8770 8.67 12.74 0.7982 C,E 32 3.18 3.8341 3.88 2.32 0.3252 B 33 23.48 3.7558 10.061 12.90 0.6607 B,E</e<>	10	12.52	6 5 5 2 7	44.01	1 07	0.4003	D,D,E
20 17.02 5.2054 1.75 0.90 0.2800 22 17.78 4.9845 10.50 8.88 0.4595 C 23 18.14 4.8664 3.69 1.50 0.2212 C 24 18.72 4.7363 0.87 0.12 0.0745 E 25 20.00 4.4360 75.21 50.02 0.3644 A,C,D,E 26 20.82 4.2631 229.44 142.05 0.3364 A,C,D,E 28 21.58 4.1146 18.55 16.39 0.4800 C,E 29 2.92 3.9673 11.32 5.83 0.2800 D 31 22.92 3.8770 8.67 12.74 0.7982 C,E 32 23.48 3.7858 10.06 5.18 0.2800 D 34 23.96 3.7110 10.61 12.90 0.6607 B,E 35 24.24 3.6688 1.66 2.88 0.9421 E 36 24.84 3.5615 53.53 40.517 <td>20</td> <td>15.50</td> <td>5 7122</td> <td>1.39</td> <td>1.07</td> <td>0.4104</td> <td></td>	20	15.50	5 7122	1.39	1.07	0.4104	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20	17.00	5.7122	0.19	0.10	0.2800	
2217.704.504310.503.680.43302318.144.86643.691.500.22122418.724.73630.870.120.0745E2520.004.45607.52150.020.3614B.C.D.E2620.824.2631229.44142.050.3364A.C.D.E2721.364.116657.8313.390.9296B2821.584.114618.5516.390.4800C.D.E2921.984.040613.6336.131.4400E3022.423.962311.325.830.2800D3122.923.87708.6712.740.7982C.E3223.183.83413.882.320.3252B3323.483.765810.065.180.2800D3423.963.711010.6112.900.6607B.E3524.243.66881.662.880.9421E3624.843.581553.5340.511.7100D.E3725.323.514717.73456.171.7600B.E3825.723.460913.727.070.2800D3926.623.34591000.00441.710.2400A.B.C.E4027.103.287826.1553.911.1200D.E4127.483.243121.7711.220.2800<	21	17.02	J.2004	1.75	0.90	0.2600	C
2316.144.00043.091.300.0745E2418.724.73630.870.120.0745E2520.004.436075.2150.020.3644B,C,D,E2620.824.2631229.44142.050.3364A,C,D,E2721.364.15657.8313.390.9296B2821.584.114618.5516.390.4800C,D,E2921.984.040613.6336.131.4400E3022.423.962311.325.830.2800D3122.923.87708.6712.740.7982C,E3223.183.83413.882.320.3252B3323.483.785810.065.180.2800D3423.963.711010.6112.900.6607B,E3524.243.66881.662.880.9421E3624.843.581553.5340.510.4111C,D,E3725.323.514717.3456.171.7600B,C,D,E3825.723.460913.727.070.2800D3926.623.4591000.00441.710.2400A,B,C,E4027.103.28782.61553.911.1200D,E4127.863.199819.229.900.280024227.863.04777.824.60<	22	17.70	4.9040	10.00	0.00	0.4090	C
24 16.12 4.7353 0.57 0.12 0.143 E E 25 20.00 4.4360 75.21 50.20 0.3614 B,C,D,E 27 21.36 4.1565 7.83 13.39 0.9296 B 28 21.58 4.1146 18.55 16.39 0.4800 C,D,E 29 21.98 4.0406 13.63 36.13 1.4400 E 30 22.42 3.9623 11.32 5.83 0.2800 D 31 22.92 3.8770 8.67 12.74 0.7982 C,E 32 23.18 3.8341 3.88 2.32 0.2800 D 34 23.96 3.7110 10.61 12.90 0.6607 B,E 35 24.24 3.6688 1.66 2.88 0.9421 E 36 24.84 3.5815 53.53 40.51 0.4111 C,De 37 25.32 3.5147 17.34 56.17 1.7600 B,E 38 26.62 3.459	23	10.14	4.0004	3.09	1.00	0.2212	E
2320.004.4500 73.21 30.02 0.3144 B,C,D,E 26 20.82 4.2631 22.944 142.05 0.3364 A,C,D,E 27 21.36 4.1565 7.83 13.39 0.9266 B 28 21.58 4.1146 18.555 16.39 0.4800 C,D,E 29 21.98 4.0406 13.63 36.13 1.4400 E 30 22.42 3.9623 11.32 5.83 0.2800 D 31 22.92 3.8770 8.67 12.74 0.7982 C,E 32 23.18 3.8341 3.88 2.32 0.3252 B 33 23.48 3.7858 10.06 5.18 0.2800 D 34 23.96 3.7110 10.61 12.90 0.6607 B,E 35 24.24 3.6688 1.66 2.88 0.9421 E 36 24.84 3.5815 53.53 40.51 0.4111 C,D,E 37 25.32 3.5147 17.34 56.17 1.7600 B,C,E 38 26.62 3.3459 1000.00 441.71 0.2400 A,B,C,E 40 27.10 3.2878 26.15 53.91 1.200 D,E 41 27.86 3.1998 19.22 9.90 0.2800 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 <td>24</td> <td>10.72</td> <td>4.7303</td> <td>0.07 75.01</td> <td>0.12</td> <td>0.0743</td> <td></td>	24	10.72	4.7303	0.07 75.01	0.12	0.0743	
20 20.82 4.4531 229.44 142.05 0.9286 B 27 21.36 4.1565 7.83 13.39 0.9296 B 28 21.58 4.1146 18.55 16.39 0.4800 C,D,E 29 21.98 4.0406 13.63 36.13 1.4400 E 30 22.42 3.9623 11.32 5.83 0.2800 D 31 22.92 3.8770 8.67 12.74 0.7982 C,E 32 23.48 3.7410 10.61 12.90 0.6607 B,E 35 24.24 3.6688 1.66 2.88 0.9421 E 36 24.84 3.5815 53.53 40.51 0.4111 C,D,E 37 25.32 3.5147 17.34 56.17 1.7600 B,E 38 25.72 3.4609 13.72 7.07 0.2800 D 41 27.48 3.2431 2.177 <t< td=""><td>25</td><td>20.00</td><td>4.4300</td><td>70.21</td><td>20.0Z</td><td>0.3014</td><td>B,C,D,E</td></t<>	25	20.00	4.4300	70.21	20.0Z	0.3014	B,C,D,E
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	20	20.82	4.2031	229.44	142.00	0.3304	A,C,D,E
2021.364.146016.3516.390.4000C,D,E3022.423.962311.325.830.2800D3122.923.87708.6712.740.7882C,E3223.183.83413.882.320.3252B3323.483.755810.065.180.2800D3423.963.711010.6112.900.6607B,E3524.243.66881.662.880.9421E3624.843.581553.5340.510.4111C,D,E3725.323.514717.3456.171.7600B,E3825.723.460913.727.070.2800D3926.623.34591000.00441.710.2400A,B,C,E4027.103.287826.1553.911.1200D,E4127.483.243121.7711.220.28004227.863.04777.824.600.32004429.283.04777.824.600.32004529.942.98208.621.1420.7200E4630.302.94743.9551.070.1470D4730.622.91735.631.520.14704831.042.87885.373.940.3844931.282.85734.402.100.25995031.462.84133.06<	21	21.30	4.1000	1.03	10.09	0.9290	
2921.804.040013.6330.131.4400E3022.423.962311.325.830.2800D3122.923.87708.6712.740.7982C,E3223.183.83413.882.320.3252B3323.483.71010.6112.900.6607B,E3423.963.711010.6112.900.6607B,E3524.243.66881.662.880.9421E3624.843.581553.5340.510.4111C,D,E3725.323.514717.3456.171.7600B,E3926.623.34591000.00441.710.2400A,B,C,E4027.103.287826.1553.911.1200D,E4127.463.243121.7711.220.90028004227.863.199819.229.900.2800434429.283.04777.824.600.32002.94744529.942.98208.6211.420.7200E4630.302.94743.951.070.1470D4730.622.91735.631.520.1470D4831.042.87834.402.100.2599C,E5132.022.97292.580.930.1966D5232.342.76602.451.110.2469	20	21.00	4.1140	10.00	10.39	0.4600	C,D,E
30 22.42 3.9025 11.52 3.63 0.2600 D 31 22.92 3.8770 8.67 12.74 0.7982 $C.E$ 32 23.18 3.8341 3.88 2.32 0.3252 B 33 23.48 3.7858 10.06 5.18 0.2800 D 34 23.96 3.7110 10.61 12.90 0.6607 $B.E$ 35 24.24 3.6688 1.66 2.88 0.9421 E 36 24.84 3.815 53.53 40.51 0.4111 $C.D.E$ 37 25.32 3.5147 17.34 56.17 1.7600 $B.E$ 38 25.72 3.4609 13.72 7.07 0.2800 D 40 27.10 3.2878 26.15 53.91 1.1200 $D.E$ 41 27.48 3.2431 21.77 11.22 0.2800 42 27.86 3.1998 19.22 9.90 0.2800 43 28.52 3.1272 24.63 34.45 0.700 44 29.28 3.0477 7.82 4.60 0.3200 45 29.94 2.9820 8.62 11.42 0.7200 46 30.30 2.9474 3.955 1.07 0.1470 47 30.62 2.9173 5.63 1.52 0.1470 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.259	29	21.90	4.0400	10.00	JU.IJ 5 02	1.4400	
31 22.92 3.0710 0.071 12.74 0.7902 C,E 32 23.18 3.8341 3.88 2.32 0.3252 B 33 23.48 3.7858 10.06 5.18 0.2800 D 34 23.96 3.7110 10.611 12.90 0.6607 B,E 35 24.24 3.6688 1.66 2.88 0.9421 E 36 24.84 3.5815 53.53 40.511 0.4111 C,D,E 37 25.32 3.5147 17.34 56.17 1.7600 B,E 38 25.72 3.6009 13.72 7.07 0.2800 D 39 26.62 3.3459 1000.00 441.71 0.2400 A,B,C,E 40 27.10 3.2878 26.15 53.911 1.1200 D,E 41 27.48 3.2431 21.77 11.22 0.2800 42 27.86 3.1998 19.22 9.90 0.2800 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 E 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.955 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 47 30.62 2.9173 5.63 1.52 0.1470	21	22.42	3.9023	11.32	0.00 10.74	0.2000	
33 23.48 3.7856 10.06 2.32 0.3232 B 34 23.96 3.7110 10.61 12.90 0.6607 B,E 35 24.24 3.6688 1.66 2.88 0.9421 E 36 24.84 3.5815 53.53 40.51 0.4111 C,D,E 37 25.32 3.5147 17.34 56.17 1.7600 B,E 38 25.72 3.4609 13.72 7.07 0.2800 D 39 26.62 3.3459 1000.00 441.71 0.2400 A,B,C,E 40 27.10 3.2878 26.15 53.911 1.200 D,E 41 27.48 3.2431 21.77 11.22 0.2800 42 27.86 3.1998 19.22 9.90 0.2800 43 28.52 3.0477 7.82 4.60 0.3200 44 29.28 3.0477 7.82 4.60 0.3200 45 29.94 2.9820 8.62 11.42 0.7200 46 30.30 2.9474 3.955 1.07 0.1470 47 30.62 2.9173 5.63 1.52 0.1470 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 50 31.46 2.8413 3.06 1.11 0.1544 51 32.02 2.7929 2.58	20	22.92	3.0770	0.07	12.74	0.7902	U,E
3323.463.783010.000.1600.16112.900.6607BE3524.243.66881.662.880.9421E3624.843.581553.5340.510.4111C,D,E3725.323.514717.3456.171.7600B,E3825.723.460913.727.070.2800D3926.623.34591000.00441.710.2400A,B,C,E4027.103.287826.1553.911.1200D,E4127.483.243121.7711.220.28004227.863.199819.229.900.28004328.523.127224.6334.450.76004429.283.04777.824.600.32004529.942.98208.6211.420.7200E4630.302.94743.951.070.1470D4730.622.91735.631.520.1470D4831.042.87885.373.940.3984-4931.282.85734.402.100.2599C,E5031.462.84133.061.110.1966D5232.942.713821.946.110.1514C,D,E5335.182.548957.1954.110.5141B,C,D,E5433.602.665111.683.2550.1514C,D,E <td>১∠ ৫৫</td> <td>23.10</td> <td>3.0341</td> <td>3.00 10.06</td> <td>Z.JZ 5 19</td> <td>0.3232</td> <td>D</td>	১∠ ৫৫	23.10	3.0341	3.00 10.06	Z.JZ 5 19	0.3232	D
34 23.90 3.7110 10.81 12.90 0.6007 B_{c} 35 24.24 3.6688 1.66 2.88 0.9421 E 36 24.84 3.5815 53.53 40.51 0.4111 C,D,E 37 25.32 3.5147 17.34 56.17 1.7600 B,E 38 25.72 3.4609 13.72 7.07 0.2800 D 39 26.62 3.3459 1000.00 441.71 0.2400 A,B,C,E 40 27.10 3.2878 26.15 53.911 1.1200 D,E 41 27.48 3.2431 21.77 11.22 0.2800 42 27.86 3.1998 19.22 9.900 0.2800 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.95 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D 52 32.34 2.7660 2.455 1.11 0.2469 <	24	23.40	3.7000	10.00	12.10	0.2800	
35 24.24 3.0000 1.00 2.00 0.9421 E 36 24.84 3.5815 53.53 40.51 0.4111 C,D,E 37 25.32 3.5147 17.34 56.17 1.7600 B,E 38 25.72 3.4609 13.72 7.07 0.2800 D 39 26.62 3.3459 1000.00 441.71 0.2400 A,B,C,E 40 27.10 3.2878 26.15 53.91 1.1200 D,E 41 27.48 3.2431 21.77 11.22 0.2800 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.955 1.07 0.1470 D 47 30.62 2.9173 5.633 1.52 0.1470 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8489 57.19 54.11 0.1666 D 52 32.34 2.7660 2.45 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.1514 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D,E 57<	34 25	23.90	3.7110	10.01	12.90	0.0007	
36 24.84 3.3613 35.33 40.31 0.4111 C,D,E 37 25.32 3.5147 17.34 56.17 1.7600 B,E 38 25.72 3.4609 13.72 7.07 0.2800 D 40 27.10 3.2878 26.15 53.91 1.1200 D,E 41 27.48 3.2431 21.77 11.22 0.2800 0 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 E 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.95 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11	30	24.24	3.0000	1.00	2.00	0.9421	
38 25.32 3.3147 11.34 30.17 11.000 B,E 39 26.62 3.3459 1000.00 441.71 0.2400 A,B,C,E 40 27.10 3.2878 26.15 53.911 1.1200 D,E 41 27.48 3.2431 21.77 11.22 0.2800 42 27.86 3.1998 19.22 9.90 0.2800 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 E 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.955 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D 52 32.34 2.7660 2.45 1.11 0.1466 D 53 32.98 2.7138 21.94 6.11 0.1514 C,D,E 54 33.60 2.6651 11.68 3.255 0.1514 C,D,E 54 35.98 2.4941 23.19 54.28 $1.$	27	24.04	3.5015	17.24	40.51	1 7600	
39 26.62 3.3459 100.00 441.71 0.2000 D 40 27.10 3.2878 26.15 53.91 1.1200 D ,E 41 27.48 3.2431 21.77 11.22 0.2800 42 27.86 3.1998 19.22 9.90 0.2800 43 28.52 3.1272 24.63 34.45 0.7600 B ,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 45 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.955 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D 52 32.34 2.7660 2.455 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.1514 54 33.60 2.6651 11.68 3.255 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 46.06 0.2301 A,B,C,E 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,D,E	20	25.52	3.5147	17.34	JU.17 7 07	0.2800	D,E
3520.023.34331000.00 $+11.11$ 0.2400 A, D, O, L 4027.103.287826.1553.911.1200D,E4127.483.243121.7711.220.28004227.863.199819.229.900.28004328.523.127224.6334.450.7600B,C,D,E4429.283.04777.824.600.3200E4630.302.94743.951.070.1470D4730.622.91735.631.520.14704831.042.87885.373.940.39844931.282.85734.402.100.2599C,E5031.462.84133.061.110.1966D5232.342.76602.4551.110.2469B5332.982.713821.946.110.1514E,D,E5433.602.665111.683.2550.1514C,D,E5535.182.548957.1954.110.5141B,C,D,E5635.982.4545108.7646.060.2301A,B,C,E5837.702.384214.9625.680.9327C,D,E5938.502.336420.922.3110.6000B,C,D,E6140.342.281890.4340.840.2454A,B,E,E6140.342.281894.3743.920.2316 <t< td=""><td>30</td><td>20.72</td><td>3 34009</td><td>1000.00</td><td>7.07</td><td>0.2800</td><td></td></t<>	30	20.72	3 34009	1000.00	7.07	0.2800	
41 27.10 3.2010 20.10 30.31 1.1200 D,L 41 27.86 3.1998 19.22 9.90 0.2800 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.955 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D 52 32.02 2.7929 2.58 0.93 0.1966 D 52 32.98 2.7138 21.94 6.11 0.1514 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 61 40.34 2.2340 46.39 19.78 0.2316	40	20.02	3 2878	26.15	53.01	1 1200	
41 27.86 3.1998 19.22 9.90 0.2800 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.95 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 48 31.04 2.8788 5.37 3.94 0.3984 D 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D 52 32.34 2.7660 2.455 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.514 F 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 <t< td=""><td>40</td><td>27.10</td><td>3.2070</td><td>20.13</td><td>11 22</td><td>0.2800</td><td>D,L</td></t<>	40	27.10	3.2070	20.13	11 22	0.2800	D,L
42 27.00 3.1950 19.22 9.50 0.200 43 28.52 3.1272 24.63 34.45 0.7600 B,C,D,E 44 29.28 3.0477 7.82 4.60 0.3200 45 29.94 2.9820 8.62 11.42 0.7200 E 46 30.30 2.9474 3.95 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 B,E 51 32.02 2.7929 2.58 0.93 0.1966 D 52 32.34 2.7660 2.445 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.5141 C,D,E 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D,E 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.922 23.11 </td <td>41</td> <td>27.40</td> <td>2 1009</td> <td>21.77</td> <td>0.00</td> <td>0.2000</td> <td></td>	41	27.40	2 1009	21.77	0.00	0.2000	
4326.32 3.1272 24.03 34.43 0.7000 B,C,D,E 4429.28 3.0477 7.82 4.60 0.3200 4529.942.9820 8.62 11.42 0.7200 E46 30.30 2.9474 3.95 1.07 0.1470 D47 30.62 2.9173 5.63 1.52 0.1470 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D52 32.34 2.7660 2.45 1.11 0.2469 B53 32.98 2.7138 21.94 6.11 0.1514 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 <td< td=""><td>42</td><td>27.00</td><td>3.1990</td><td>19.22</td><td>9.90</td><td>0.2800</td><td>RCDE</td></td<>	42	27.00	3.1990	19.22	9.90	0.2800	RCDE
4429.20 3.0477 7.02 4.00 0.3200 4529.94 2.9820 8.62 11.42 0.7200 E46 30.30 2.9474 3.955 1.07 0.1470 D47 30.62 2.9173 5.63 1.52 0.1470 D48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E50 31.46 2.8413 3.06 1.11 0.1966 D52 32.02 2.7929 2.58 0.93 0.1966 D52 32.34 2.7660 2.45 1.11 0.2469 B53 32.98 2.7138 21.94 6.11 0.1514 C,D,E54 33.60 2.6651 11.68 3.25 0.1514 C,D,E55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E56 35.98 2.4941 23.19 54.28 1.2716 B,C,D57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E60 39.46 2.2818 90.43 40.84 0.2454 A,B,C,D,E61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E	43	20.02	3.1272	24.03	34.45 4.60	0.7000	D,C,D,E
46 30.30 2.9474 3.95 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 D 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D 51 32.02 2.7929 2.58 0.93 0.1966 D 52 32.34 2.7660 2.45 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.1514 C,D,E 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D <e< td=""> 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68<!--</td--><td>44</td><td>29.20</td><td>2 0820</td><td>8.62</td><td>4.00</td><td>0.3200</td><td>F</td></e<>	44	29.20	2 0820	8.62	4.00	0.3200	F
40 30.30 2.3474 3.53 1.07 0.1470 D 47 30.62 2.9173 5.63 1.52 0.1470 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D 52 32.02 2.7929 2.58 0.93 0.1966 D 52 32.98 2.7138 21.94 6.11 0.1514 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000	40	29.94	2.9020	3.02	107	0.7200	
47 50.52 2.5173 5.05 1.02 0.1470 48 31.04 2.8788 5.37 3.94 0.3984 49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 D 51 32.02 2.7929 2.58 0.93 0.1966 D 52 32.34 2.7660 2.45 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.1514 C,D,E 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 <	40	30.50	2.3474	5.95	1.07	0.1470	D
49 31.28 2.8573 4.40 2.10 0.2599 C,E 50 31.46 2.8413 3.06 1.11 0.1966 B,E 51 32.02 2.7929 2.58 0.93 0.1966 D 52 32.34 2.7660 2.45 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.1514 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 60 39.46 2.2818 90.43 40.84 0.2454 A,B,C,D,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 <td>47</td> <td>31.02</td> <td>2.9175</td> <td>5.03</td> <td>3.04</td> <td>0.1470</td> <td></td>	47	31.02	2.9175	5.03	3.04	0.1470	
43 31.20 2.0373 4.40 2.10 0.2399 0.2,L 50 31.46 2.8413 3.06 1.11 0.1966 B,E 51 32.02 2.7929 2.58 0.93 0.1966 D 52 32.34 2.7660 2.45 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.1514 54 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 61 40.34 2.2818 90.43 40.84 0.2454 A,B,C 62 40.72 2.2140	40	31.04	2.0700	5.57	5.94 2.10	0.3904	CE
50 31.40 2.0413 3.00 1.11 0.1900 D,L 51 32.02 2.7929 2.58 0.93 0.1966 D 52 32.34 2.7660 2.45 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.1514 54 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 61 40.34 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 63 41.24 2.1873	49 50	31.20	2.0075	4.40	2.10	0.2099	D,L BE
51 32.02 2.7929 2.30 0.333 0.1900 D 52 32.34 2.7660 2.45 1.11 0.2469 B 53 32.98 2.7138 21.94 6.11 0.1514 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 61 40.34 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 <td< td=""><td>50</td><td>31.40</td><td>2.0413</td><td>5.00 2.59</td><td>1.11</td><td>0.1900</td><td>D,L</td></td<>	50	31.40	2.0413	5.00 2.59	1.11	0.1900	D,L
52 32.94 2.7000 2.43 1.11 0.2409 B 53 32.98 2.7138 21.94 6.11 0.1514 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 60 39.46 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263	52	32.02	2.7929	2.50	0.95	0.1900	
53 52.30 2.7.130 21.34 0.111 0.1314 54 33.60 2.6651 11.68 3.25 0.1514 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 60 39.46 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0	52	32.04	2.7000	2.43	6.11	0.2409	Б
54 53.00 2.0031 11.00 53.23 0.1314 C,D,E 55 35.18 2.5489 57.19 54.11 0.5141 B,C,D,E 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 60 39.46 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 </td <td>53</td> <td>32.90</td> <td>2.7150</td> <td>21.94</td> <td>0.11</td> <td>0.1514</td> <td>CDE</td>	53	32.90	2.7150	21.94	0.11	0.1514	CDE
55 35.16 2.3499 37.19 54.11 0.3141 D,0,D,L 56 35.98 2.4941 23.19 54.28 1.2716 B,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 60 39.46 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34	55	35.00	2.0001	57 10	5/ 11	0.1314	
57 36.58 2.4541 23.19 34.20 1.2710 D,C,D 57 36.58 2.4545 108.76 46.06 0.2301 A,B,C,E 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 60 39.46 2.2818 90.43 40.84 0.2454 A,B,C,D,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	56	35.08	2.0409	23.10	5/ 28	1 2716	BCD
57 50.30 2.4343 100.70 40.00 0.2301 A,D,C,L 58 37.70 2.3842 14.96 25.68 0.9327 C,D,E 59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 60 39.46 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	57	36.58	2.4941	108.76	J4.20 46.06	0.2301	
59 38.50 2.3364 20.92 23.11 0.6000 B,C,D,E 60 39.46 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	58	37.70	2.4040	1/ 06	40.00	0.2301	
60 39.46 2.2818 90.43 40.84 0.2454 A,B,E 61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	50	38 50	2.0042	14.90 20 02	20.00 22.11	0.9327	
61 40.34 2.2340 46.39 19.78 0.2316 A,B,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	60	30.00	2 2818	20.92 QN /13	20.11 40.84	0.2454	
61 40.34 2.2340 40.35 13.76 0.2310 A,D,C,D,E 62 40.72 2.2140 5.64 2.03 0.1953 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	61	20.40 20 21	2 22/0	16 20 16 20	40.04 10.79	0.2404	
62 40.72 22.140 0.04 2.03 0.1303 C,D,E 63 41.24 2.1873 10.56 7.71 0.3968 B,C,D,E 64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	62	40.0 4	2 21/0	-0.33 5 61	2 03	0.2010	C D F
64 42.48 2.1263 94.37 43.92 0.2529 A,B,C,D,E 65 43.38 2.0842 4.50 2.10 0.2529 B,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	63	<u>41</u> 91	2 1 8 7 2	10.56	2.03	0.1000	
65 43.38 2.0842 4.50 2.10 0.2529 A,B,C,D,E 66 44.08 2.0527 2.20 1.03 0.2529 C,D 67 44.34 2.0413 3.06 0.72 0.1287 D.E	64	40 1R	2.1073	Q/ 27	1.1 1	0.0500	
66 44.08 2.0527 2.20 1.03 0.2529 D,E 67 44.34 2.0413 3.06 0.72 0.1287 D.E	65	דב.+0 על לע	2.1200	J4.37 1 50	40.92 0.10	0.2029	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
67 44.34 2.0413 3.06 0.72 0.1287 D.E	66	40.00 44 NR	2.0042	 2 20	1 03	0.2520	С. D
	67	44.34	2.0413	3.06	0.72	0.1287	0,0 D,E

68	44.86	2.0188	2.69	1.59	0.3213	D,E
69	45.26	2.0019	7.90	3.81	0.2617	B,C,E
70	45.80	1.9796	51.65	29.41	0.3093	A,B,C,D,E
71	46.58	1.9482	8.18	8.00	0.5312	B,C,D,E
72	46.96	1.9333	7.68	3.39	0.2400	B,C,D,E
73	47.28	1.9210	6.39	2.27	0.1933	В
74	47.68	1.9058	3.00	5.20	0.9402	E
75	47.96	1.8953	3.52	6.09	0.9402	B,C,D,E
76	48.88	1.8618	2.01	3.49	0.9402	B,C,D,E
77	49.32	1.8462	2.16	3.74	0.9402	B,D,E
78	49.68	1.8337	2.50	4.33	0.9402	B,C,E
79	50.16	1.8172	140.41	60.20	0.2329	A,B
80	50.60	1.8025	2.43	4.66	1.0412	A,B,D,E
81	51.04	1.7880	3.47	6.64	1.0412	B,C,D,E
82	52.32	1.7472	1.62	3.11	1.0412	C,E
83	53.04	1.7252	1.06	2.03	1.0412	C,D,E
84	53.50	1.7114	2.52	4.83	1.0412	B,C,D,E
85	54.02	1.6962	3.09	5.92	1.0412	B,C,D,E
86	54.40	1.6852	13.46	10.90	0.4400	B,C,D,E
87	54.90	1.6710	48.64	34.25	0.3827	A,B,C,D,E
88	55.34	1.6588	22.44	17.93	0.4340	A,B,C,D,E
89	55.90	1.6435	11.16	5.75	0.2800	B,C,D,E
90	56.38	1.6306	10.06	15.07	0.8137	B,C,D
91	56.66	1.6232	3.55	4.70	0.7208	B,C,E
92	57.24	1.6081	12.07	7.11	0.3200	A,B,C,D,E
93	57.92	1.5909	5.16	7.70	0.8103	B,D,E
94	58.12	1.5859	6.62	3.41	0.2800	B,C
95	58.64	1.5730	3.54	1.22	0.1869	B,C,D,E
96	59.12	1.5614	2.86	4.33	0.8213	B,C,D,E
97	59.64	1.5490	7.79	2.87	0.2000	B,C,D,E
98	60.00	1.5406	132.63	63.02	0.2582	A,B,E
99	60.54	1.5281	0.29	0.10	0.1885	B,C,D,E
100	60.80	1.5222	1.78	0.62	0.1885	B,C,E
101	61.14	1.5146	2.73	1.67	0.3336	B,C,D,E
102	62.46	1.4857	42.07	47.56	0.6141	B,C,D,E
103	63.18	1.4705	1.40	2.09	0.8118	B,C,D,E
104	63.72	1.4593	5.40	8.06	0.8118	B,C,D,E
105	64.12	1.4512	16.25	9.32	0.3116	A,B,C,D,E
106	65.30	1.4278	2.10	0.87	0.2252	B,C,D
107	65.78	1.4185	7.86	3.81	0.2635	A,B,C,D
108	67.26	1.3909	0.13	0.06	0.2635	B,D
109	67.74	1.3822	66.25	24.39	0.2000	A,B,D
110	68.28	1.3726	108.96	77.11	0.3845	A,B,C,D
111	69.92	1.3443	9.67	2.85	0.1600	В

Integrated Profile Areas

Based on calculated profile

Profile area	Counts	Amount
Overall diffraction profile	146530	100.00%
Background radiation	67894	46.33%
Diffraction peaks	78636	53.67%
Peak area belonging to selected phases	61633	42.06%
Peak area of phase A (Silicon oxide Quartz)	41381	28.24%
Peak area of phase B (Dickite)	11843	8.08%
Peak area of phase C (Illite)	5697	3.89%
Peak area of phase D (Clinochlore)	1992	1.36%
Peak area of phase E (Kaolinite)	720	0.49%
Unidentified peak area	17003	11.60%

Peak Residuals

Peak data	Counts	Amount
Overall peak intensity	1916	100.00%
Peak intensity belonging to selected phases	1866	97.39%
Unidentified peak intensity	50	2.61%

Diffraction Pattern Graphics

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KEMENTERIAN PENDIDIKAN KEBUDAYAAN RISET DAN TEKNOLOGI UNIVERSITAS HASANUDDIN FAKULTAS TEKNIK DEPARTEMEN TEKNIK GEOLOGI PROGRAM STUDI TEKNIK GEOLOGI

PETA MODEL SEBARAN LITOLOGI

BLOK X, PT. BUMI SUKSESINDO TUJUH BUKIT, PESANGGARAN, BANYUWANGI, JAWA TIMUR

SKALA TIDAK SEBENARNYA

OLEH : FERNANDA DZIKRI AL GHIFARI D061 19 1057

> GOWA 2024

GAN	:

Dacite

Phreatomagmatic Breccia

Diorite

Data Bor Dacite

Data Bor PhreatomagmaticBreccia

Data Bor Diorite

Lubang Bor

UHGZ-23-143 Kode Bor

"Modifikasi dari pemodelan menggunakan aplikasi *Leapfrog Geo 5.1*" Sayatan penampang menggunakan sudut azimuth 45°.

UHGZ-23-143UHGZ-23-143WDepthAlterationLithologyDepthAlteration		Alteration	Lithology	UHGZ-22-090 Magy Depth Alteration Lithology		Lithology	UHGZ-21-068 Depth Alteration Lithology		UHGZ-2	UHGZ-21-035		gy Denth Alteration Lithology		Lithology	UHGZ-22-116 Depth Alteration Lithology			UHGZ-21-070 Depth Alteration Lithology			UHGZ-21-075 Depth Alteration Lithology			UHGZ-22-089 Depth Alteration Lithology			GTD-10-166 Depth Alteration Lithology					
0.0						0.0 =			0.0 =			0.0	∃		0.0	∃		0.0 I		Dacite				0.0 =			0.0]					
10.0 -		Dacite	10.0			10.0		Dacite	10.0			10.0		Breccia	10.0			10.0			10.0		Dacite	10.0			10.0			10.0		
20.0 -		Ducite	20.0			20.0	ПЫ-СУ		20.0			20.0			20.0			20.0			20.0			20.0		Dacite	20.0			20.0		
30.0 -			30.0			30.0	AR		30.0	Hsi-al		30.0	Hsi-cy		30.0			30.0			30.0			30.0			30.0			30.0		
40.0 -	Hsi-al		40.0			40.0			40.0			40.0			40.0		Duposia	40.0	Hsi-cy	Breccia	40.0			40.0			40.0	Hsi-cy		40.0		
50.0 -			50.0			50.0			50.0			50.0			50.0		Breccia	50.0			50.0			50.0			50.0			50.0		
50.0 -			50.0			50.0	IA		50.0			50.0			50.0			60.0			50.0	Hsi-cv		60.0			60.0			50.0		
50.0						50.0			00.0			50.0			50.0	AR					50.0			00.0	Hsi-cy		00.0					
70.0 -			70.0			70.0			70.0			70.0	Hcy-si		70.0			70.0			70.0			70.0			70.0			70.0		
80.0 -	AK		80.0			80.0	Hei-al		80.0			80.0			80.0	Hsi-al		80.0			80.0			80.0			80.0			80.0		
90.0 -	Pro		90.0			90.0			90.0			90.0			90.0	Hsi		90.0	Unvisi		90.0			90.0			90.0			90.0		
100.0 -	AR		100.0			100.0			100.0			100.0			100.0	Hsi-al Hsi-cy	Tonalite	100.0	HCY-SI		100.0			100.0			100.0	AR		100.0		
110.0 -	Pro		110.0			110.0			110.0			110.0			110.0	Hcy-si		110.0			110.0			110.0			110.0			110.0		
120.0 -	IA	Breccia	120.0			120.0		Breccia	120.0			120.0	AR		120.0			120.0			120.0			120.0			120.0			120.0		
130.0 -	Hsj-cv		130.0			130.0			130.0			130.0			130.0			130.0			130.0	AR	Broccia	130.0			130.0			130.0		
140.0 -	Hsi-cy		140.0			140.0			140.0			140.0			140.0			140.0	AR		140.0		Diccela	140.0	AR		140.0	Hsi-cy	Breccia	140.0		
150.0 -	Hsi-al Hsi-cv		150.0			150.0			150.0		Duessia	150.0			150.0			150.0			150.0			150.0		Breccia	150.0			150.0		
160.0 -	AR Hcy-si		160.0			160.0			160.0		Breccia	160.0			160.0			160.0	IA		160.0	IA		160.0		Dieccia	160.0	AR		160.0		
170.0 -	AR		170.0			170.0			170.0			170.0	Hcy-si	Dacite	170.0			170.0	AR		170.0			170.0			170.0			170.0		
180.0 -	Hsi-cy		180.0			180.0			180.0			180.0			180.0	Hsi-cy		180.0			180.0			180.0	AR		180.0			180.0		
100.0 -	Hsi-al		190.0			100.0			190.0			190.0			190.0			100.0			190.0			100.0			100.0			190.0		
190.0	Hsi-cy		200.0			200.0			200.0	Hsi-cy		200.0			200.0			200.0		Dacite	200.0			200.0			200.0			200.0		
200.0	AK		200.0			200.0			200.0			200.0	AR		200.0		Breccia	200.0	Hcy-si		200.0			200.0			200.0	Hsi-cy		200.0		
210.0 -			210.0			210.0		Dacite	210.0			210.0			210.0			210.0			210.0	Hsi-cy		210.0			210.0			210.0		
220.0 -			220.0			220.0	Hsi-cy		220.0			220.0			220.0			220.0			220.0			220.0			220.0			220.0		
230.0 -			230.0			230.0		Breccia	230.0			230.0	Hcy-si		230.0			230.0			230.0			230.0	Hsi-cy		230.0	AR		230.0		
240.0			240.0			240.0			240.0			240.0			240.0			240.0			240.0			240.0			240.0			240.0		
250.0 -		Dacite	250.0			250.0			250.0			250.0			250.0			250.0	Housi		250.0	_		250.0			250.0			250.0		
260.0 -			260.0			260.0			260.0			260.0	AR		260.0			260.0	AR		260.0			260.0			260.0	Hsi-cy		260.0		
270.0 -	Hsi-cy		270.0			270.0			270.0			270.0			270.0			270.0	Hcv-si		270.0	АК		270.0			270.0			270.0	Hsi-cy	
280.0 -			280.0			280.0			280.0			280.0			280.0			280.0	AR		280.0		Dacite	280.0			280.0			280.0		
290.0 -			290.0			290.0			290.0			290.0	Hcy-si		290.0			290.0			290.0	Hsi-cy		290.0			290.0	Hei-al		290.0		
300.0 -			300.0			300.0		Dacite	300.0			300.0			300.0			300.0	Hcy-si		300.0			300.0	Hsi		300.0	i isi-di		300.0		
310.0 -			310.0			310.0			310.0			310.0			310.0			310.0			310.0			310.0			310.0			310.0		
320.0 -		Breccia	320.0			320.0			320.0			320.0	Hsi-cy		320.0	AI	Diorite	320.0	Hsi-cy		320.0	Hcy-si		320.0			320.0			320.0		
330.0 -			330.0			330.0			330.0		Diorite	330.0			330.0			330.0			330.0	AR		330.0	Hsi-al		330.0			330.0		Breccia
240.0 -			240.0			240.0			240.0	AR		240.0	AR		240.0			240.0		Breccia	240.0			240.0			240.0			240.0		
340.0	Hsi-al		340.0			340.0			340.0			340.0	Hsi-cy AR		340.0		Breccia	340.0	Hcy-si		340.0			340.0			340.0			340.0		
350.0	Hsi-cy		350.0			350.0			350.0			350.0		Breccia	350.0			350.0			350.0	Hsi-cy	Breccia	350.0			350.0			350.0		
360.0 -	Hcy-si		360.0 -			360.0			360.0			360.0			360.0			360.0	AR		360.0			360.0	Hsi		360.0			360.0	AR	
370.0 -			370.0			370.0			370.0			370.0			370.0			370.0			370.0			370.0			370.0			370.0		
380.0 -			380.0			380.0		Tonalite	380.0	IA		380.0			380.0			380.0			380.0	Hsi-al		380.0			380.0			380.0		
390.0 -			390.0			390.0	AR		390.0			390.0			390.0			390.0	Hcy-si		390.0			390.0			390.0			390.0		
400.0	ΤΔ		400.0	AL IA	Diorite	400.0			400.0			400.0			400.0			400.0			400.0			400.0		l'onalite	400.0			400.0	Hsi-cy	
410.0 -			410.0			410.0			410.0			410.0	Hsi-al		410.0			410.0			410.0	Hsi		410.0			410.0			410.0		
420.0 -		Diorite	420.0			420.0	IA		420.0			420.0			420.0	Pro		420.0			420.0			420.0			420.0			420.0		
430.0 -			430.0			430.0	AR	Diorite	430.0			430.0			430.0			430.0			430.0			430.0			430.0			430.0		
440.0 -			440.0			440.0	HCy-SI		440.0	Pro		440.0			440.0			440.0	Hsi-cy		440.0			440.0			440.0	Hsi-cy		440.0		
450.0 -			450.0			450.0	Hsi-cy		450.0			450.0			450.0		Toroll	450.0			450.0	Hsi-al		450.0			450.0			450.0	AR	
460.0 -						460.0		Breccia	460.0			460.0	Hcy-si		460.0		ronalite	460.0		Diorito	460.0			460.0			460.0			460.0		
470.0 -						470.0			470.0	ΙΑ		470.0			470 0			470.0		Dionte	470.0	Hsi		470.0			470.0			470.0		
<u>.,</u> 480 0 -						480 0			480 0	Pro		480.0			420 0			480 0			480 0			480 0			480 0			480 0		
							Hcy-si			ΙΑ				Tonalite								Hsi-al							Diorite			
490.0	AR					490.0			490.0			490.0	IA		490.0			490.0			490.0			490.0			490.0			490.0		
500.0 -						500.0			500.0	Pro		500.0			500.0			500.0			500.0	Hsi		500.0			500.0			500.0		
510.0 -		Tonalite				510.0			510.0			510.0			510.0			510.0	Hcy-si		510.0			510.0			510.0			510.0		
520.0 -						520.0			520.0			520.0			520.0			520.0			520.0			520.0			520.0			520.0		
530.0 -						530.0			530.0		Tonalite	530.0			530.0			530.0			530.0			530.0			530.0			530.0		
540.0 -						540.0	AP		540.0			540.0			540.0			540.0			540.0	Hsi-al		540.0	HSI-AI		540.0			540.0		
550.0 -						550.0	AK		550.0			550.0			550.0			550.0			550.0			550.0			550.0			550.0		
560.0 -						560.0			560.0			560.0			560.0			560.0			560.0			560.0			560.0			560.0		
570.0 -	Pro	Diorite				570.0			570.0			570.0			570.0			570.0	Hsi-cy		570.0			570.0			570.0			570.0		
580.0 -						580.0			580.0			580.0			580.0		Diorite	580.0			580.0			580.0			580.0			580.0		
						590.0	Pro		590.0			590.0			590.0		bionte	590.0			590.0			590.0			590.0			590.0		
						600.0			600.0	IA		600.0			600.0			600.0			600.0	Hei eu	Topolito	600.0 ¹¹¹			600.0			600.0		
						610.0			610.0			610.0			610.0			610.0			610.0	HSI-CY	Tonalite	610.0			610.0			610.0		
									01010			01010	Pro		01010	-																

Diorite

Diorite

Hsi-cy

AR

Tonalite

1090.0

1100.0