

Dedicated to
Prof. Ivan Kostov (1913-2004),
prominent Bulgarian mineralogist

A catalogue of the mineral species in the National Museum of Natural History, Sofia (Part 2) Silicates

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Abstract. Part 2 of the catalogue includes mineral species, belonging to the biggest mineral class – Silicates, in the collection of the National Museum of Natural History Sofia. The collection comprises 356 species, 67 varieties, and 8 groups of not precisely determined mineral species.

Key words: Catalogue, Mineral species, Silicates, National Museum of Natural History Sofia

The new museum catalogue of the mineral species is based on the systematics of KOSTOV (1993), and the names of mineral species are given after MANDARINO (1999). The catalogue includes all specimens registered in the main museum fund until 2001 year. Part 2 of the mineral catalogue includes mineral species belonging to the biggest and most widespread mineral class – Silicates, according to the systematics of KOSTOV (1993). Here are presented 356 species in 5528 pieces, 67 varieties and 8 groups of not precisely determined mineral species.

Legend:

Column: **Mineral classes, sub-classes, assemblages, groups, species and varieties**

- Names of mineral species are given after MANDARINO (1999) and KOSTOV (1993), following their Bulgarian translation in brackets.
- All mineral species are in bold. For example: **Quartz (Кварц)**
- The mineral varieties are in bold and italic. For example: - ***Heliotrope (Хелиотроп)***
- Groups of not precisely determined minerals are in square brackets, bold and italic. For example: [***Scapolite***] [***Ckanoaum***]

- Mineral species or variety followed by “II” means a species or variety of secondary importance in the sample. For example: **Merlinoite II (Мерлиноум II) - Cacholong II (Качолонг II)**

Column: **Localities, region, country**

- The list of localities follows the scheme: it always begins with localities in Bulgaria, followed by localities in other European countries, Asia, Africa, North and South America, Australia and Antarctica.
- All localities in one region are separated by commas.
- All localities in one country are separated by semicolons.
- Countries are separated by dots.

Table 1

A catalogue of the mineral species in the National Museum of Natural History, Sofia (KOSTOV 1993) (part 2) Silicates

Mineral classes, sub-classes, assemblages, groups, species and varieties	pieces	Localities, region, country
1	2	3
CLASS 5. SILICATES		
1. Silicates with (Si, Al): M ²⁺ =4:1 to 3:1		
1.1. Free SiO ₂ and free of aluminium silicates		
1.1.1. Quartz group		
Quartz (Кварц)	1462	Strashimir, Mogilata, Osikovo, Kroushev Dol, Petrovitsa, Borieva Reka,
- <i>Aventurine (Авантюрин)</i>	1	Gyudyurska, Gradishte, Konski Dol, Murzyan, Golyam Palas, Batantsi,
- <i>Ametbyst (Аметист)</i>	115	Spoluka, Karaalievsko mines - Madan reg.; Arda, Gyurgen dere mines -
- <i>Morion (Морион)</i>	10	Madzharovo reg.; Chernomorets quarry, Vurli bryag, Surneshko kladenche
- <i>Chalcedony (Халцедон)</i>	95	mine - Burgas reg.; Pozharevo vill., Zapachitsa dep., near Bov vill., Kremikovtsi
- <i>Heliotrope (Хелиотрон)</i>	1	dep., Lipata quarry, Vitosha Mt., Lozen Mt., Lyulin Mt., Sofia reg.; Kara-
- <i>Carnelian II (Карнеол II)</i>	3	dere valley, Varna reg.; Markova trapeza, Zlokuchene vill., Kalkovo vill.,
- <i>Sard II (Сергер II)</i>	1	Samokov reg.; Narechenski bani, Stoikite, Davidkovo, Mihalkovo, Yugovo,
- <i>Chrysoptas (Хризопраз)</i>	8	Banite, Galabovo, Chepelare villages - Smolyan reg.; Dyadovtsi, Lyaskovo,
- <i>Agate (Агат)</i>	115	Latinka, Sipalar villages, Ardino reg.; Boevo vill., Zlatograd reg.; Vlaykov vrach,
- <i>Jasper (Яспис)</i>	29	Panagyurishte reg.; Topolovgrad reg.; Petlite summit, Bliznaka Lake, Rila Mt.;
		Persenk, Govedarnika mine - Luki reg.; Osigovo, Marchevo, Teshevo vill. - G.
		Delchev reg.; Nova Mahala vill., Batak reg.; Ivaylovgrad Dam; Ribnovo vill.,
		Palat vill., Blagoevgrad reg.; Divisilovo vill., Gorna Kula vill., Krumovgrad reg.
		Sushevo vill., Momchilgrad reg.; Vishteritsa quarry, W. Rhodopi Mts; Gluhar,
		Gledka, Karamfil, Gruevo, Shiroko pole, Podkova, Kostino, Pepelishite villages,
		Zvezdel dep., Galenit mine, Enyovche mine, Kurdzhali reg.; Mineralni bani
		vill., Brusevtsi vill., Mareshnitsa mine, Haskovo reg.; Smilovene quarry,
		Koprivshitsa reg. Bukite, Ruen mines - Osogovo Mt.; Eliseyna mine, Boyadjik

1	2	3
Quartz and varieties (continuation)		<p>vill., Yambol reg.; Vlak summit, Sredna gora Mt.; Strandzha mine, M. Turnovo reg.; Chiprovtsi mine, Montana reg.; Ezerovo vill., Plovdiv reg. (Bulgaria). Freiberg, Altenberg, Annaberg, Schlema, Schneeberg, St. Egidien, Erzgebirge; Schneckenstein; Bergen; Ilfeld, Clausthal, Andreasberg, Neudorf mine, Harz; Iserlohn, Sauerland; Kaiserstuhl, Baden; Heidelberg; Dreislar, Sauerland; Oberstein; Rheinbreitbach; Hochstein (Germany). Trepca (Serbia). Piemonte; Praborna mine, Rio Marina mine, Elba; Capurru quarry, Sassari prov., Sardinia; Bottino, Tuscany (Italy). Styria (Austria). Loukhumi (Georgia). Upsala (Sweden). Compostela (Spain). Stalvedrostollen; Turbenalp, Lengenbach, Binntal; St. Gotthard, Tessin; Mont Blanc (Switzerland). Saint Pricis, Saone et Loire; Cap Garonne, Sand, Bas-Rhin (France). Rozna, Dolni Bory, Dobra Voda, Nova Ves, Moravia; Jachymov; Rakosh; Krupka; Vrancice, Pribram; Bohemia; Kozakov; Horni Slavkov; Kutna Hora; Trebic; Cinovec mine; Zeleznice; Moldava riv.; Bestvina; BochoviceKremze; Kisselka quarry, Moravia (Czech Republic). Vodno vill., Skopje (Macedonia). Nagol'nyi Kryazh, Donetsk Basin; Lvov reg.; Ukrainka vill., Crimea; Volodarsk-Volynskii; Zaporoz'e; Dzhambulskia deposit (Ukraine). Nowy Kosciol, Sudety; Strzegom; Ieglova (Poland). Cavnic; Baia de Aries; Baia Sirne (Romania). Salm - Chateau; Blaton, Hainant (Belgium). South Shetland islands; Dry Gill (England). Ilimaussaq (Greenland). Alavus; Outokumpu (Finland). (Iceland) (Norway). Mir kimberlite pipe, Yakutia; Chupa, Karelia; Kovdor, Khibiny, Korabl' Cape, Kola pen.; Slyudyanka, Tazheranskii massif, Sededema riv., Siberia; Dalnegorskoye dep.; Magadan; Chukotka; Transbaikalia; Timanskii Kryazh; Orsk; Tselina, Rostot Prov.; Cape Taygonos; Ohotskoe coast, Golotvino; Beloretskaya kirov Prov.; Buryatia (Russia). L'ubietova; Banska Stiavnica (Slovakia). Dashkesan (Azerbaijan). Altay Mt., Karaagach (Kazakhstan). Khash Rud (Afghanistan). Khan Bogdo; Modoto; Gorikho; Henteyn Mts. (Mongolia). Hunan; Guishou (China). Dara-Pioz (Tadzhikistan). Shaba; Poonaa; Anrangabad (India). Lebombo; Alto Ligonha; Manica (Mozambique). Hamadala (Libya). (Zimbabwe). Nishinomaki mine, Gumma pref; Senhoshi Mt. (Japan). (Burundi). Gatumba (Rwanda). Reneville,</p>

1	2	3
Quartz and varieties (continuation)		(Congo). Dalan (Somalia). Jos Plateau (Nigeria). Tamagot mine (Mauritania). Tsaobismund (Namibia). Guerrero (Mexico). Caluquembe (Huila). Kuacra (Angola). Mt. Ida, Arkansas; Crawford, Nebraska; Bisbee, Arizona; Copper Creek Dist. Arizona; Hansonburg mine, New Mexico; Queen mine, California (USA). Mt. St.-Hilaire (Canada). Huaron; Pasto Bueno; Huancavelica (Peru). Minas Gerais; Boquira mine, Bahia, Rio Grande do Sul; Gamba (Brazil). Broken Hill (Australia).
Tridymite (Тридумит)	5	Popintsi vill., Panagyurishte reg. (Bulgaria). Kiselka quarry, Moravia (Czech Republic). Cagliari, Sardinia (Italy). Bellerberg, Eifel (Germany). Japan.
Melanophlogite (Меланофлогит)	2	Rio Fortullino, Livorno, Tuscany (Italy)
Cristobalite (Кристобалит)	3	Gledka vill., Kurdzhali reg. (Bulgaria). Sand, Bas-Rhin; Puy de Dome (France).
- <i>Lussatite (Лусатит)</i>	1	Lussat, Creuse (France).
Opal (Опал)	68	Mineralni bani vill., Dragoyna vill., Haskovo reg.; Boyadjik vill., Goliamo
- <i>Hyalite (Хиалит)</i>	4	Sharkovo vill., Yambol reg.; Osigovo vill., G. Delchev reg.; Svetoslav vill.,
- <i>Saccholong II (Сахолонг II)</i>	1	Kurdzhali reg.; Lozen Mt., Sofia reg. (Bulgaria). Menelmontaun (France). Vinnytsya Prov.; Lvov reg. (Ukraine). Galicia; Caldes de Mallavela, Catalonia (Spain). Nedvedice, Nova Ves, Moravia; Valec; Bohemia; Kremze; Bohousovce (Czech Republic). L'ubietova; Dubnik; Cervenica (Slovakia). Szklary (Poland). Tai - Keu, Ural (Russia). Kaiserstuhl, Baden; Schinkelberg; Osnabruck; Uberkassel; Steinhembei Hanau (Germany). Karaagach (Kazakhstan). (Zimbabwe). Zimapan (Mexico). Quilpy, Queensland; Cooper Pedy; White Cliffs, New South Wales (Australia).
1.1.2. Magadiite group		
Magadiite (Магадит)	1	Kanem (Chad).
1.2. Aluminosilicates		
1.2.1. Feldspar group		

1	2	3
Hyalophane (Хуалофан)	6	Busovaca (Bosnia and Herzegovina). Sivets, Prilep; Selechka Mt. (Macedonia). Siberia (Russia).
Albite (Албум)	93	Vishteritsa quarry, W. Rhodopi Mts; Belite brezi hut, Marchaevsko kale, Shipeto,
- <i>Oligoclase (Олигоклаз)</i>	16	Lipata quarry, Vitosha Mt.; Gorni Okol vill., Sofia reg.; Fetikler vill.,
- <i>Andesine (Андезин)</i>	3	Momchilgrad reg.; Smilovene quarry, Koprivshitsa reg. Chernomorets quarry,
- <i>Labradorite (Лабрадор)</i>	12	Burgas reg.; Dyadovtsi vill., Latinka vill., Banite vill., Galabovo vill., Ardino
- <i>Bytownite (Битовнит)</i>	1	peg.; Chepelare, Smolyan reg.; Urdini Lakes, Rila Mt.; Parvenets vill., Yambol
Anorthite (Анортит)	2	reg. (Bulgaria). Tyrol (Austria). Val Canaria, Ticino; Binnschlucht, Wallis (Switzerland). Dobra Voda, Rozna, Dolni Bory; Cyrilov, Markovice, Moravia (Czech Republic). San Piero in Campo, Elba (Italy). Bergen (Germany). Lovozero massif, Khibiny, Kola pen.; Ilmeny, Ural; Chupa, Karelia, Mutkovski volkano, Kamchatka (Russia). Strzegom; Wroclaw, Lower Silesia (Poland). Kvanefield, Ilimaussaq (Greenland). Byrud, Minenesud; Kongsberg (Norway). Volodarsk-Volynskii; Golovino, Zhitomir (Ukraine). Eycott Hill, Cumbria (England). Nampula Prov. (Mozambique). Mt. St.-Hilaire, Quebec (Canada). Gorikho (Mongolia). Jugoppe Shiraoui, Hokkaido (Japan). Minas Gerais (Brazil). Harbor Trust quarry, Portland, Victoria (Australia).
Orthoclase (Ортоклаз)	11	Stoikite vill., Galabovo vill., Chepelare, Smolyan reg.; Latinka vill., Ardino
- <i>Adularia (Адулар)</i>	47	reg.; Nova Mahala vill., Batak reg.; Tsarvaritsa vill., Kyustendil reg.; Pirin Mt.; Rosen mine, Burgas reg. (Bulgaria). Karlovy Vary (Czech Republic). Banska Stavnica (Slovakia). Hounrie; Lindenberg mine; Hannover; Gundbruck (Germany). Kongsberg (Norway). Volodarsk-Volynskii (Ukraine). Felbertal, Salzburg; Elbachalm, Amertal; Schwarzenstein, Tyrol (Austria). Fibbia, St. Gotthard (Switzerland). Val di Vizze, Tyrol; Bozen, San Piero in Campo, Elba (Italy). Khibiny, Kola pen. (Russia). Senhoshi Mt. (Japan). Mt. St.-Hilaire, Quebec (Canada).
Microcline (Микроклин)	59	Dolen vill., Zlatograd reg.; Galabovo vill., Chepelare, Smolyan reg.; Kalkovo
- <i>Amazonite (Амазонит)</i>	15	vill., Samokov reg.; Karakaya summit, Velingrad reg.; Vishteritsa quarry, W. Rhodopi Mts; Smilovene quarry, Koprivshitsa reg. Chernomorets quarry,

1	2	3
		Burgas reg.; Belite brezi, Marchaevsko kale, Shipeto, Lipata quarry, Vitosha Mt., Dolni Okol vill., Sofia reg. (Bulgaria). Khibiny, Kola pen. (Russia). Volodarsk-Volynskii; Donets Basin (Ukraine). Bergen (Germany). Dolni Bory, Moravia (Czech Republic). Broyes, Saone et Loire; An Nivit, Cotes (France). Ilimaussaq (Greenland). Khan Bogdo (Mongolia). Mt. St.-Hilaire, Quebec (Canada). Peak area, Colorado (USA). Broken Hill (Australia).
Sanidine (Санидин)	31	Gyueshevo vill., Tsarvaritsa vill., Osogovo Mt.; Kyustendil reg.; Komuniga vill., Kurdzhali reg.; Kremen vill., Dobrinishte vill., Blagoevgrad reg.; Babeshino vill., Luki reg. (Bulgaria). Drachenfels; Belerberg, Eifel (Germany).
Celsian II (Целзиан II)	2	Busovaca (Bosnia and Herzegovina). Shiramaru mine, Tokyo pref. (Japan).
Cymrite (Кумрит)	5	Nezilovo vill. (FYRO Macedonia). Shiramaru mine, Tokyo pref. (Japan).
Slawsonite (Слаусонит)	1	Kagami, Kochi pref. (Japan).
1.2.2. Scapolite group		
- [Scapolite] [Скаполаит]	15	Burdtsse mine, M. Turnovo reg.; Mihalkovo vill., Chepelare, Smolyan reg. (Bulgaria). Sentenac d'Oust (Italy). Dobra Voda, Moravia (Czech Republic). Arendal (Norway). Karelia; Slyudyanka, Siberia (Russia). Belaora (Madagascar).
Meionite (Мейонит)	27	Belia uluk, Rila monastery; Urdini Lakes, Petlite summit, Rila Mt. (Bulgaria). Mc Gregor lake, Quebec (Canada).
Ussingite (Усинзит)	5	Ilimaussaq (Greenland). Lovozero massif; Khibiny, Kola pen. (Russia).
1.2.3. Nepheline group		
Nepheline (Нефелин)	16	Yukspor Mt., Khibiny, Kola pen.; Ilmeny, Ural (Russia). Donets Basin (Ukraine). Selse Dell'Osa; Valle Ranello; Latium; Osa, Rome (Italy). Ilimaussaq (Greenland). Davis Hill, Bancraft, Ontario (Canada). Hoy Las Minas, E. of Huijo, El Progreso Dept. (Guatemala).
Kalsilite (Калсилит)	1	San Venanzo (Italy).
1.2.4. Cancrinite group		

1	2	3
Cancrinite (Канкринум)	3	Vishneve Gory, Ural (Russia). Mt. St.-Hilaire, Quebec; Blue Mountain, Ontario (Canada).
Vishnevite (Вишневит)	1	Loch Borrolan, Scotland (Great Britain).
Afghanite (Афганит)	1	Pitigliano, Grosseto, Tuscany (Italy).
Liottite (Лиоттит)	2	Pitigliano, Grosseto, Tuscany (Italy).
Cancrisilite (Канкрисилит)	1	Alluaiv Mt., Lovozero, Kola pen. (Russia).
1.2.5. Petalite group		
Petalite (Петалит)	5	Uto(e) island (Sweden). Nova Ves, Moravia (Czech Republic). Alto Ligonha (Mozambique).
Leifite (Лейфит)	2	Karnasurt Mt., Lovozero, Kola pen. (Russia). Mt. St.-Hilaire, Quebec (Canada).
1.2.6. Leucite group		
Leucite (Левцит)	4	Capo di Bove, Rome; Vesuvius, Naples; Roccamonfina, Gaeta (Italy).
Ammonioleucite (Амониолевит)	1	Fujioka, Sanbagawa, Gumma pref. (Japan).
Pollucite (Полуцит)	4	Karelia; Khibiny, Kola pen. (Russia). Maine state (USA). Bernic lake, Manitoba (Canada).
1.2.7. Sodalite group		
Sodalite (Содалит)	9	Donets Basin; Oktyabr'skii massif; Vinnytsya Prov. (Ukraine). Lovozero, Kola pen. (Russia). Ilimaussaq (Greenland). Davis Hill Bancroft, Ontario; Mt. St.-Hilaire, Quebec (Canada).
- <i>Hackmanite (Хакманит)</i>	2	
Наӱне (Халун)	2	Niedermendig, Laacher See, Eifel (Germany). Tairapu (Taihti).
Lazurite (Лазурит)	14	Malaya Bystraya, Lake Baikal; Slyudyanka, Siberia (Russia). Altay Mt. (Kazakhstan). Pamir (Tadzhikistan).
1.3. Zeolites		
1.3.1. Zeolites from Na-Ca assemblages		
1.3.1.1. Natrolite group		
Natrolite (Намролит)	37	

1	2	3
- <i>Tetranatrolite</i> (<i>Тетранатролит</i>)	1	Banevo vill., Burgas reg.; Parvenets vill., Yambol reg.; Tursko pole vill., Madzharovo reg. (Bulgaria). Hammerunterwiesenthal, Erzgebirge; Ortenberg, Hessen (Germany). Karnasurt Mt., Lovozero; Kukisvumchorr Mt., Khibiny, Kola pen. (Russia). Casal do Penedo Monsanto (Portugal). Kvanefield-tunnel, Ilimaussaq (Greenland). Usti nad Labem (Czech Republic). Tvedalen, Langensund (Norway). Hardap (Namibia). Mt. St.-Hilaire, Quebec (Canada) Willowtree; Flinders, Pioneer quarry, Victoria; Harkaway (Australia).
Gonnardite (Гонардит)	8	Banevo vill., Burgas reg. (Bulgaria). Kloch, Styria (Austria).
Mesolite (Мезолит)	5	Petlite summit, Seven Rila Lakes, Rila Mt. (Bulgaria). King George isl., South Shetland islands (Great Britain). Pashan, Poona (India).
Thomsonite (Томсонит)		
- <i>Faroelite</i> (<i>Фароелит</i>)	35	Banevo vill., Burgas reg.; Urdini Lakes, Rila Mt.; Parvenets vill., Yambol reg.;
	1	Vitosha Mt., Sofia reg. (Bulgaria). Hammerunterwiesenthal (Germany). Dobra i Decina; Hamry (Czech Republic). Parkgate quarry (Ireland). Langasandur (Denmark). Drain, Douglas Co.; Burnt Cabin Creek, Spray, Wheeler Co., Oregon (USA). Flinders area, Victoria (Australia).
Scolecite (Сколецит)	5	Banevo vill., Burgas reg. (Bulgaria). Teigarhorn (Iceland). Rio das Antas, Rio Grande do Sul; Minas Gerais (Brazil).
Paranatrolite (Паранатролит)	1	Vishnevy Gory, Ural (Russia).
1.3.1.2. Laumontite group		
Laumontite (Ломонит)	21	Banevo vill.; Chernomorets quarry; Trud; Rosen; Vurli bryag mines; Burgas reg.; Strandzha mine, M. Turnovo reg.; Komuniga vill., Kurdzhali reg. (Bulgaria). Ukrainka vill., Crimea (Ukraine). Kola pen. (Russia). Pashan, Poona (India). Drain, Douglas Co.; Tillamook Co., Oregon; Skookumshuck Dam, Tenino, Washington; Mineral Co. Colorado; Pine Creek mine, Bishop, California (USA). Rio das Antas, Rio Grande do Sul (Brazil). Garravilla (Australia).
1.3.1.3. Mordenite group		

1	2	3
Mordenite (Морденит)	21	Sushevo vill., Momchilgrad reg.; Gruevo vill., Kurdzhali reg.; Mihalkovo vill., Smolyan reg (Bulgaria). Vivi riv., Siberia (Russia). Bombay (India).
Dachiardite (Дакиардит)	7	Alpe di Siusi; Orli di Fassa, Bolzano (Italy). Zeilberg, Maroldswisach, Franconia (Germany). Cape Lookout, Tillamook Co., Oregon (USA).
Ferrierite (Ферриерит)	7	Zvezdel dep., Kurdzhali reg. (Bulgaria). Schio-Vicenza (Italy). Berrys Beach, Phillip Isl., Victoria (Australia).
Erionite (Ерионит)	4	Akhaltikhe (Georgia). Iki isl., Kynshu (Japan). Clifton, Arizona; Rock Island Dam, Washington (USA).
Offrétite (Офретиум) 1.3.1.4. Stilbite group	4	Mont Simiose (France). Rock Island Dam, Washington (USA).
Stilbite (Стилбит)	57	Fotinovo vill., Momchilgrad reg.; Lipata quarry, Vitosha Mt., Pancharevo, Khyazhevo, Marchaev, Malo Buchino villages - Sofia reg.; Madzharovo reg.; Stoikite vill., Smolyan reg.; Strelcha vill., Medet mine, Panagyurishte reg; Vurli bryag mine, Burgas reg. (Bulgaria). Andreasberg; Hernborn, Hessen (Germany). Sumperk, Moravia (Czech Republic). Strzegom (Poland). Dunabogdany (Hungary). Sokolovskii mine (Kazakhstan). Sardinia (Italy). Leitisvatn, Vagar (Denmark). (Iceland). King George isl., South Shetland islands (England). Klichka, Transbaikalia; Vivi riv., Siberia; Buryatia; S. Yakutia (Russia). Pashan, Poona (India). Pennsylvania; Skookumchuck Dam, Thurston Co., Washington (USA). Garravilla, New South Wales; Arkaroola (Australia).
Heulandite (Хейландит)	23	Antenata, Lipata quarries, Vitosha Mt., Sofia reg.; Madzharovo reg.; Stoikite vill., Smolyan reg. (Bulgaria). Kozakov (Czech Republic). Karadag, Crimea (Ukraine). Strzegom (Poland). Tyrol (Austria). Sardinia; Valle di Fassa (Italy). Kedykverpakh, Lovozero, Kola pen.; Yakutia (Russia). Akhaltikhe (Georgia). Poona (India). Prospect Park, New Jersey; Rock Island Dam, Washington (USA).
Epistilbite (Епистилбит)	2	Su Marralzu, Osilo, Sassari, Sardinia (Italy).
Barrerite (Барерит)	3	Monastir, Sardinia (Italy).

1	2	3
Cowlesite (Корулсум)	1	Old quarry, Green Road (Ireland).
Yugawaralite (Югаваралум)	5	Osilo, Sassari, Sardinia (Italy). Seikoshi mine, Shizuoka pref. (Japan). Khandivali quarry, Bombay (India).
Clinoptilolite (Клиноптилолит)	6	Zvezdel dep., Kurdzhali reg.; Popintsi vill., Panagyurishte reg. (Bulgaria). Hongova (Russia). Tillamook, Oregon (USA).
Stellerite (Стеллерит) 1.3.1.5. Gismondite group	2	Alghero, Sardinia (Italy). Ritter Hot Springs, Grant Co., Oregon (USA).
Gismondine (Жисмондин)	3	Teichelberg, Bavaria; Aresberg, Zilsdorf (Germany). Dobrzanka (Czech Republic).
Gobbinsite (Гобинсум)	2	Hills Port, Antrim Co., Northern Ireland (Great Britain).
Garronite (Гаронит) 1.3.1.6. Chabazite group	1	Garron Plateau, Antrim Co., Northern Ireland (Great Britain).
Chabazite (Хабазум) <i>- Phacolite (Факолит)</i>	32 3	Nova Mahala vill., Batak reg.; Urdini Lakes.; Petlite summit, Rila Mt.; Chernomorets quarry, Burgas reg.; Madzharovo reg.; Stoikite vill., Smolyan reg. (Bulgaria). Strzegom (Poland). Dunabogdany (Hungary). Maglovec (Slovakia). Repcice (Czech Republic). Langd, Hessen; Ostenberg; Andreasberg (Germany). Tyrol (Austria). Antrim Co. (Ireland). Clifton, Arizona (USA). Melbourne, Victoria; Gads Hill, Tasmania (Australia).
Gmelinite (Гмелинит)	4	Ukrainka vill., Crimea (Ukraine). Dobra Voda (Czech Republic). Flinders area, Victoria (Australia).
Levynite (Левинит)	3	Iki isl., Kynshu (Japan). Burnt Cabin Creek, Spray, Wheeler Co., Oregon (USA). Victoria (Australia).
Wilhendersonite (Уилхендерсонит) 1.3.1.7. Analcime group	2	Vispi quarry, San Venanzo, Umbria (Italy).
Analcime (Аналцим)	53	Baratsi vill., Krumovgrad reg. Parvenets vill., Yambol reg.; Banevo vill., Burgas reg.; Madzharovo reg. (Bulgaria). Tyrol (Austria). Sierra de Monchique (Portugal). Glenarm, Antrim Co., Northern Ireland (Great Britain). Taseq Slope; Kvanefeld, Ilimaussaq (Greenland). Bor mine (Serbia). Farra (Italy). Tungusk; Siberia

1	2	3
Analcime (continuation)		(Russia). Kumansi (Georgia). Hardap (Namibia). Mt. St.-Hilaire, Quebec (Canada). Spring area, Arizona (USA). Willowtree; Flinders area, Victoria (Australia).
Wairakite (Ваўракіт)	1	Hachimantai (Japan).
Paulingite (Паўлінгіт)	2	Chase Creek, British Columbia (Canada). Ritter, Grant Co., Oregon (USA).
1.3.2. K-Ba zeolite assemblages		
Brewsterite (Брўстэрыт)	1	Strontian, Argyllshire, Scotland (Great Britain).
Amicite (Амічыт)	2	Howengg, Hegau (Germany). Kukisvumchorr Mt., Khibiny, Kola pen. (Russia).
Phillipsite (Філіпсіт)	16	Hammerunterwiesenthal; Langd, Hessen; Arensberg, Zilsdorf, Eifel; Andreasberg. (Germany). Ronca, Varese (Italy). Ukrainka vill., Crimea (Ukraine). Beech Creek, Oregon; Burro Creek Campground, Arizona; Rock Island Dam, Washington (USA).
Merlinoite II (Мерліноіт II)	1	Howenegg, Hegau (Germany).
Harmotome (Хармотом)	7	Iskra vill., Kurdzhali reg. (Bulgaria). Andreasberg (Germany). Tyrol (Austria). D. Rosinka (Czech Republic). Kornas (Finland). Bellesgrove mine, Strontian (Great Britain). Desamparaditos (Costa Rica).
Mariocopaite (Маріокопаіт)	1	Moon Anchor mune, Tonopah, Maricopa Co., Arizona (USA).
2. Silicates with (Si, Al): M ²⁺ =3:1 to 1:1		
2.1. Be-Al-Mg(Fe) assemblages		
2.1.1. Axial		
2.1.1.1. Bavenite group		
Bavenite (Бавеніт)	5	Smilovene quarry, Koprivshitsa reg. (Bulgaria). Strzegom (Poland). Izumrudnye kop'i, Ural (Russia).
Sörensenite (Сьоренсеніт)	1	Kvanefjeld Plateau, Ilimaussaq (Greenland).
2.1.1.2. Pyroxene group		
Enstatite (Енстатіт)	14	Brusevtsi vill., Haskovo reg. (Bulgaria). Miedzianka, Silesia (Poland). Skorasice;
- <i>Hypersthene (Хіперстен)</i>	1	Nova Ves, Moravia (Czech Republic). Harz (Germany). Michimata, Iwate pref. (Japan).

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Clinoenstatite (Клиноенстатит)	1	Bad Harzburg, Harz (Germany).
Diopside (Диопсид)	45	Petlite summit, Bliznaka Lake, Urdini Lakes, Belya uluk, Rila monastery,
- <i>Chromdiopside (Хромдиопсид)</i>	7	Skakavitsa Lake, Rila Mt.; Chepelare, Smolyan reg.; Propada mine, M. Turnovo
- <i>Fassaite (Фасаит)</i>	1	reg.; Enyovche mine, Kurdzhali reg.; Vacha riv., Antonivanovtsi Dam, Krichim
		reg. (Bulgaria). Wurtitz pres, Bayreuth. Arendal (Norway). Smrci, Kozakov,
		(Czech Republic). Guleman (Turkey). Hodrusa (Slovakia). Valle Ranello;
		Praborna; Piemonte (Italy). Outokumpu (Finland). Slyudyanka; Tazheran;
		Siberia; Kovdor, Kola pen.; Inagli massif, Yakutia (Russia). Dara-Pioz
		(Tadzhikistan). Himalayas. Belaora (Madagascar).
Hedenbergite (Хеденбергит)	14	Lyubovna cheshma mine, Ardino reg.; Sharenka, Osikovo mines - Madan reg.
		(Bulgaria). Arendal (Norway). Dalnegorskoye deposit (Russia). Burgillos del
		Cerro (Spain). Elba Island (Italy). Etats-Unis (French Guiana).
Johannsenite (Йохансенит)	17	Sharenka, Gradishte, Osikovo mines - Madan reg.; Enyovche mine, Kurdzhali
		reg. (Bulgaria). Iron Cap mine, Arizona (USA).
Omphacite II (Омфацит II)	1	Hoy Las Minas, El Progreso, Depart. (Guatemala).
Augite (Авзит)	21	Krushevets vill., Lozenets vill., Burgas reg.; Parvenets vill., Yambol reg.;
- <i>Diallagite (Диалагит)</i>	4	Hrabrino vill., Sotir vill., Plovdiv reg. (Bulgaria). Paskopole; Cernosin (Czech
		Republic). Osa, Rome (Italy). Ilimaussaq (Greenland). Olot (Spain). Val di
		Fassa, Tyrol (Italy). Boreslav, Mittelgebirge (Germany). Harbour Trust quarry,
		Victoria (Australia).
Aegirine (Егирин)	83	Krivoi Rog (Ukraine). Ilimaussaq, Tuperssuatsiait (Greenland). Hazlov (Czech
		Republic). Hedrum, Vestfol (Norway). Kirovskii mine, Kukisvumchorr Mt.,
		Rasvumchorr Mt., Khibiny, Lovozero, Yukspor Mt., Kola pen.; Chara river,

1	2	3
Aegirine (continuation)		Siberia (Russia). Êvanefjeld, Dara-Pioz (Tadzhikistan). Khan Bogdo (Mongolia). Mt. St.-Hilaire; Kipawa River, Quebec (Canada).
Jadeite (Жадеит)	4	Itokaua; Satoshi Muto (Japan). Hoy Las Minas, El Progreso, Depart. (Guatemala).
Spodumene (Сподумен)	10	Nova Ves, Dobra Voda, Moravia (Czech Republic). Brandrucken, Koralpe,
- <i>Kunzite II (Кунцит II)</i>	2	(Austria). Siberia; Kola pen. (Russia). Ambatofotsikeli (Madagascar). Tassiest (Mauritania). (Mozambique). Pala, Chif mine, California (USA).
Bikitaite (Букитаит)	5	Bikita (Zimbabwe).
2.1.1.3. Amphibole group		
- [<i>Amphibole</i>] [<i>Амфибола</i>]	47	Smilovene quarry, Koprivshitsa reg. Bliznaka Lake, Urdini Lakes, Elenski Lakes, Rila Mt.; Vladaya vill., Sofia reg.; Strandzha mine, M. Turnovo reg.; Stoikite vill., Smolyan reg.; Chernomorets quarry, Cherveno zname, Rosen mines - Burgas reg.; Oreshino vill., Ivaylovgrad reg. (Bulgaria). Bor mine (Serbia). Markovice, Kosstenblatt, Dobra Voda, Moravia (Czech Republic). Sentenac d'Oust (Italy). Zillertal, Tyrol (Austria). Bourg d'Oisans, Dauphine (France). Ilimaussaq, Taperssuatsiait (Greenland). Transbaikalia, Siberia (Russia). Hissar Mts. (Tadzhikistan). Ondor - Tsagan (Mongolia). Bayan Obo (China). Mt. St.-Hilaire, Quebec; Ezonville, Ontario (Canada). Etats Unis (French Guiana).
Anthophyllite (Антофилит)	13	Dobromirski dep., Zlatograd reg.; Golyamo Kamenyane vill., Avren vill.,
- <i>Anthophyllite asbestos</i>	10	Krumovgrad reg.; Yakovitsa vill., Kurdzhali reg.; Ihtiman reg. (Bulgaria).
(<i>Антофилов азбест</i>)		Hermanov, Moravia (Czech Republic).
Holmquistite (Холмквистит)	5	Brandrucken, Carinthia (Austria). East Siberia (Russia). Kirengo (Rwanda).
Summingtonite (Съмннгтонит)	1	Krivoi Rog (Ukraine).
Mangansummingtonite	1	Chvaletice (Czech Republic).
(<i>Манганокъмннгтонит=Данеморит</i>)		
Tremolite (Тремолит)	34	Zeleni rid, Seven Rila Lakes, Urdini Lakes, Elenski Lakes, Petlite summit, Rila
Actinolite (Актинолит)	21	Mt.; Bela reka, N Pirin Mt.; Dorkovo vill., Velingrad reg.; Stipon quarry,
- <i>Nephrite (Нефрит)</i>	6	Ihtiman reg. Avren vill., Krumovgrad reg. Pletena vill., G. Delchev reg.; Strandzha

1	2	3
Actinolite and varieties (continuation)		mine, M. Turnovo reg. (Bulgaria). St Gotthard (Switzerland). Wroclaw, Lower Silesia (Poland). Sabotin bei Sumpferk; Olesnice, Moravia (Czech Republic). Tresebourg, Harz, Freiberg (Germany). Piemont (France). Lorca, Navarra (Spain). Zillertal, Tyrol; Brennkogelkees, Salzburg (Austria). Kyle of Lochalsh, Scotland. Vegarshei (Norway). Val di Vizze, Tyrol (Italy). Transbaikalia, Onot riv., Siberia; Eastern Sayan Mts.; Karelia (Russia). Kipawa River, Quebec (Canada). Northern Feinders Range (Australia).
Pargasite (Паргасит)	1	Parainen, Turku (Finland).
Hastingsite (Хейстингсит)	2	Danga summit, Rila Mt. (Bulgaria). Almunge (Sweden).
Richterite (Рихтерит)	6	Langban (Sweden). Ezonville; Wilberforce; Ontario (Canada).
Winchite (Винчит)	1	Sitapar, Chindwara distr. (India).
Magnesiokatophorite (Магнезуокатофорит)	1	Kipawa, Quebec (Canada).
Glaucophane (Глаукофан)	2	Brittany (France). Kirengo (Rwanda).
Riebeckite (Рибекит)	3	Alter Pedroso (Portugal). Krivoi Rog (Ukraine). South Africa, Lakseelv,
- <i>Crocidolite (Крокидолоит)</i>	2	(Greenland). Rzhanovo (Macedonia). Salzburg (Austria). Krivoi Rog,
- <i>Crossite (Кросит)</i>	2	(Ukraine).
- <i>Rhodusite (Родузит)</i>	1	
Arfvedsonite (Арфведсонит)	9	Selechka Mt. (Macedonia). Ilimaussaq (Greenland). Khibiny, Kola pen. (Russia). Dara-Pioz (Tadzhikistan). Mt. St. Hillary, Quebec (Canada).
2.1.1.4. Palygorskite - Sepiolite group		
Palygorskite (Палигорскит)	9	Sedmochislenitsi dep., Vratsa reg.; Surneshko kladenche mine, Burgas reg.; Strandzha mine, M. Tutnovo reg. (Bulgaria). Zhezhelev, Zhitomir; Lozovoye vill., Crimea (Ukraine). Lord Brassey mine, Heazlewood, Tasmania (Australia).
Sepiolite (Сепиолит)	1	Mehun-sur-Ye'vere, Cher (France).
- <i>Parasepiolite (Парасепиолит)</i>	1	Hohe Tauern, Salzburg (Austria).
Yofortierite (Йофортмерит)	3	Karnasurt Mt., Lovozero (Russia). Mt. St.-Hilaire, Quebec (Canada).

1	2	3
Tuperssuatsiaite (Туперсуамсуаит)	1	Tuperssuatsiait Bay, Ilimaussaq (Greenland).
2.1.1.5. Howieite - Deerite group		
Howieite (Хауиит)	3	Mendocino Co., California (USA).
Deerite (Дирит)	1	Mendocino Co., California (USA).
Carpholite (Карфолит)	7	Mansfeld, Thuringia; Wippra, Harz (Germany). Moldava; Horni Slavkov (Czech Republic).
2.1.2. Planar		
2.1.2.1. Eudidymite group		
Eudidymite (Евдидимит)	1	Langesundfjord (Norway).
Epididymite (Епидидимит)	1	Taseq slope (Greenland).
2.1.2.2. Kaolinite - Pyrophyllite group		
Kaolinite (Каолинит)	7	Glavanak vill., Haskovo reg.; Zhablyano vill., Pernik reg.; Vitosha Mt., Sofia reg. (Bulgaria). St. Austell, Cornwall (England). (Poland). Gorikho (Mongolia).
- <i>Nacrite (Накрит)</i>	1	
- <i>Anauxite (Анаксит)</i>	1	Kawazu mine (Japan). San Benito Co., California (USA).
Dickite (Дикит)	2	Nova Ruda, Sudety (Poland).
Allophane (Алофан)	1	Greu d'olorde, Barcelona (Spain).
Hisingerite (Хизингерит)	1	Langban (Sweden).
Halloysite (Халуазит)	8	Vlaykov vrah, Panagyurishte reg.; Glavanak vill., Haskovo reg. (Bulgaria). Priazovye (Ukraine).
Pyrophyllite (Пирофиллит)	2	Ovruch, Zhitomir (Ukraine). Saranovskoye dep., Urals (Russia).
2.1.2.3. Antigorite - Talc group		
- [<i>Serpentine</i>] [<i>Серпентин</i>]	17	Kresna defile, Blagoevgrad reg.; Krumovo vill., Yambol reg. (Bulgaria). Lizard, Cornwall (England). Naslawice, Sudety (Poland). Valle del Rodano (Switzerland). Pechenga, Kola pen. (Russia). Brewster, New York (USA). (Zimbabwe). Lord Brassey mine, Heazlewood, Tasmania (Australia).

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Antigorite (Антигозит)	2	Dobrevo vill., Kratovo reg. (Macedonia). Lord Brassey mine, Heazlewood, Tasmania (Australia).
-Garnierite (Гарниерит)	1	Noumea, New Caledonia, Pacific Ocean (France). Naslawice, Sudety,
- Serpophite (Серпофит)	1	(Poland). Gornoslav vill., Asenovgrad reg. (Bulgaria). Reichenstein, Silesia,
- Cerolite (Керолит)	1	(Poland). Tuva Respublika; N Buryatia; Ural (Russia). Lord Brassey mine,
Chrysotile (Хризотил - Азбест)	6	Heazlewood, Tasmania (Australia).
Pecoraite (Пекораит)	2	Lord Brassey mine, Heazlewood, Tasmania (Australia).
Talc (Талк)	22	Gruevo vill., Djebel vill., Kurdzhali reg.; Avren vill., Krumovgrad reg. Pletena
- Steatite II (Стеатит II)	1	vill., G. Delchev reg.; Zeleni rid, Seven Rila Lakes, Urdini Lakes, Rila Mt.; Koshava
		vill., Vidin reg. (Bulgaria). Sobotin bei Sumperk, Hohe Gesenue, Vernirovice;
		N. Moravia. (Czech Republic). Ural; Eastern Sayan Mts. (Russia).
		Pamir (Tadzhikistan). Huandchu; Liaoning (China). Roden mine, Thein
		(Myanmar). Griqualand (South Africa).
Cronstedtite (Кронщедтит)	1	Harz (Germany).
Lizardite (Лизардит)	1	Brosso mine, Piemonte (Italy).
Minnesotait (Миннесотаит)	2	Hagendorf, Bavaria (Germany).
2.1.2.4. Mica group		
Muscovite (Мусковит)	111	Ahryane vill., Shiroko pole vill., Kurdzhali reg.; Banite vill., Vishnevo vill.,
- Sericite II (Серицит II)	7	Chepelare, Smolyan reg.; Vishteritsa quarry, W. Rhodopi Mts; Badinovo vill.,
- Alurgite (Алургит)	2	E Rhodopes; Seven Rila Lakes, Musala summit, Vurli summit; Irechek summit,
- Fuchsite (Фуксит)	4	Rila Mt.; Chernooki vill., Krumovgrad reg. Markova trapeza, Samokov reg.;
		Dolen vill., Zlatograd reg.; Smilovene quarry, Koprivshitsa reg. Bugarchevo
		vill., Blagoevgrad reg.; Pastra vill., Kyustendil reg. Dyadovtsi vill., Latinka vill.,
		Ardino reg. (Bulgaria). Sivets, Prilep; Selechka Mt. (Macedonia). Dolni Bory,
		Cyrilov, Marsikov, Moravia; Trhove Sviny (Czech Republic). Zaporoz'е (Ukraine).
		Untersulbachtal, Salzburg (Austria). Altenberg, Erzgebirge; Bergen,
		Vogtland; Hagendorf (Germany). Binntal (Switzerland). Kovdor, Kola pen.;
		Chupa, Karelia (Russia). Kalbinskii Range (Kazakhstan). (Afghanistan). Ondor

1	2	3
Muscovite and varieties (continuation)		- Tsagan (Mongolia). Liaoning (China). Alto Ligonha (Mozambique). Ruwenzori Mt. (Zaire). Minas Gerais (Brazil). Yinnietharra (Australia).
Paragonite (Парагонит)	2	Bockau, Erzgebirge (Germany). (Switzerland).
Chernykhite (Чернихит)	1	Goble, Columbia Co., Oregon (USA).
Phlogopite (Флозогонит)	67	Seven Rila Lakes, Urdini Lakes, Rila Mt.; Surneshko kladenche mine, Burgas reg.; Bela reka, N. Pirin Mt. (Bulgaria). Hermanov, Moravia (Czech Republic). Habachtal, Salzburg (Austria). Byrud, Minnesud (Norway). Izumrudnye kop'ї, Ural; Slyudyanka, Tazheran, Siberia; Kovdor; Kola pen. (Russia). (Uzbekistan). Hoh Sai Hu (China). Phalaborwa Complex, Transvaal (South Africa). Maria III, Zambezia (Mozambique).
Tetra-ferriphlogopite (Тетраферифлозогонит)	2	Kovdor, Kola pen. (Russia).
Biotite (Биотит)	60	Stoikite vill., Chepelare, Smolyan reg.; Lipata quarry, Vitosha Mt., Sofia reg.;
- <i>Manganophyllite (Манганофиллит)</i>	1	Smilovene quarry, Koprivshitsa reg.; Ardino reg.; Kurdzhali reg.; Bliznaka
- <i>Anomite (Аномит)</i>	1	Lake, Rila Mt. (Bulgaria). Untersulzbachtal, Salzburg; Brandrucken, Korlpe; Stublban, Schellgaden; Rotgulden, Lungan (Austria). Vesuvius (Italy). Hermanov, Moravia; Brno massif (Czech Republic). An Nivit, Cotes du Nord (France). Iveland; Arendal (Norway). Bastogne (Belgium). Altenberg mine, Erzgebirge; Bergen (Germany). Naslawice (Poland). Krivoi Rog (Ukraine). Amur reg. Kitelya, Karelia; Kola pen.; Murunskii, Yakutia; Vishnevye Gory, Ural (Russia). Dara - Pioz (Tadzhikistan). Altay Mt. (Kazakhstan). Henteyn Mts. (Mongolia). Kivu (Congo). Mogulu riv. (Pakistan). Himalayas. Nisia (Angola). Ebounja, near Kribi (Cameroon). Grants Valencia Co.; Mina Tiro De Estrella, Lingiln Co. New Mexico (USA). Davis Hill Bancroft, Ontario (Canada). Harts Range (Australia).
Lepidolite (Лепидолит)	56	Rozna; Dobra Voda; Dolni Bory; Drahonin, Moravia (Czech Republic). Gualba, Catalonia (Spain). Fibbia, St. Gotthard (Switzerland). Uto(e) isl.; Varutask (Sweden). Turgenevskoye deposit, Far East; Kola pen. (Russia). (Mongolia). Alto Ligonha (Mozambique). Tassiest (Mauritania).

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Polyolithionite (Полилитионит)	3	Ilimaussaq (Greenland). Dara-Pioz (Tadjikistan). Mt. St.-Hilaire, Quebec (Canada).
Zinnwaldite (Цинвалдит)	6	Altenberg, Erzgebirge (Germany). Cinovec (Czech Republic).
2.1.2.5. Hydromica group (Illites)		
Glaucosite (Глаузит)	1	Sanidinovo vill., Pleven reg. (Bulgaria).
- <i>Hydromuscovite II (Хидромусковит II)</i>	5	Belite brezi hut, Vitosha Mt., Sofia reg.; Chepelare, Smolyan reg.; Deveti Septemvri mine, Madan reg. (Bulgaria).
Celadonite (Селадонит)	10	Malo Buchino vill., Sofia reg.; Gruevo vill., Kurdzhali reg. (Bulgaria). Ukrainka vill., Crimea (Ukraine). Anrangabal (India). Colorado (USA). Sokoro (Mexico).
Stilpnomelsne (Стилпномеалан)	1	Strzegom (Poland).
Zussmanite (Зусманит)	1	Long Vale quarry, Mendocino Co., California (USA).
Naujakasite (Науякасит)	1	Naujakasik (Greenland).
Saryopilite (Сарюпилит)	1	Molinello mine, Genova (Italy).
2.1.2.6. Brittle mica group		
Margarite (Маргарит)	3	Urdini Lakes, Rila Mt. (Bulgaria). Zillertal, Tyrol (Austria).
Anandite (Анандит)	1	Fresno Co., California (USA).
Ottrelite (Отрелит)	2	Ottrez; Salm-Chateau (Belgium).
Chloritoid (Хлоритоид)	5	Rila monastery, Rila Mt. (Bulgaria).
2.1.2.7. Chlorite group		
- [<i>Chlorite</i>] [<i>Хлорит</i>]	30	Seven Rila Lakes., Rila Mt.; Borovishka riv., Stoikite vill., Belitsa vill., Smolyan reg., Rhodopes; Strandzha mine, M. Turnovo reg.; Surneshko kladenche mine, Burgas reg.; Krumovo vill., Yambol reg.; Zhivkovo vill., Ihtiman reg. (Bulgaria).
- <i>Striegovite (Стриговит)</i>	2	Zillertal, Tyrol; Brennkogelkees, Groglocknergruppe, Salzburg; Hollgraben bei Werfen (Austria). Hermanov, Dolny Bory; Moravia (Czech Republic). Salm - Chateau (Belgium). Fibbia, St. Gotthard (Switzerland). Strzegom (Poland). Val d'Ala, Piemonte. (Italy). Chelyabinsk, Ural (Russia). (Armenia). Fort Wrangel, Alaska (USA).
- <i>Pennine (Пенин)</i>	1	

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Clinochlore (Клинохлор)	13	Zeleni rid, Elenski Lakes, Seven Rila Lakes, Urdini Lakes, Rila Mt. (Bulgaria).
- <i>Ripidolite (Рипидолит)</i>	1	Bas-Vallon Mor bihan (France). Zlatoust, Ural (Russia). Oldman Ravich Encampment, Wyoming (USA).
Cookeite (Кукеит)	7	Trebsko, Pribram; Rozna, Moravia (Czech Republic). Muiane mine, Alto Ligonha (Mozambique). (Zimbabwe). Onachita National Forest, Saline Co., Arkansas (USA).
2.1.2.8. Smectite group		
Montmorillonite (Монтмориллонит)	3	Mihalkovo vill., Smolyan reg.; Ignatievo vill., Varna reg. (Bulgaria).
Saponite (Сапонит)	2	Santa Monica Mtns., Ventura Co., California (USA).
Nontronite (Нонтронит)	1	Hagendorf, Bavaria (Germany).
Vermiculite (Вермикулит)	6	Talc quarry, Ihtiman reg.; Avren vill., Krumovgrad reg. Dorkovo vill., Velingrad reg. (Bulgaria). Ukrainka vill., Crimea (Ukraine). Kovdor, Kola pen. (Russia). (Afghanistan). Phalaborwa Complex (South Africa).
Rectorite (Ректорит)	1	Allevard, Isere (France).
2.1.3. Pseudoisometric		
2.1.3.1. Beryl group		
Beryl (Берил)	101	Seven Rila Lakes, Urdini Lakes, Rila Mt.; Smilovene quarry, Koprivshtitsa reg.
- <i>Smaragd = Emerald (Смарагд)</i>	15	Vishteritsa quarry, W. Rhodopi Mts; Vlak summit, Sredna gora Mt.;
- <i>Aquamarine (Аквамарин)</i>	11	Panagyurski koloni, Panagyurishte reg.; Galabovo, Vishnevo, Yugovo,
- <i>Morganite (Морганит)</i>	2	Chepelare villages - Smolyan reg.; Chuka vill., Zlatograd reg.; Dyadovtsi
- <i>Heliodor II (Хелиодор II)</i>	1	vill., Ardino reg. (Bulgaria). Vezna, Marsikov, Moravia; Otov (Czech Republic). Volodarsk-Volynskii (Ukraine). Habachtal, Salzburg (Austria). Franqueira (Spain). Byrud, Minnesud (Norway). Tokovaya, Izumrudnye kop'i, Ural; Scherlovaya Gora, Transbaikalia (Russia). Ondor - Tsagan (Mongolia). (Pakistan). Kalbinskii Range (Kazakhstan). Kash Rud (Afghanistan). Gatumba (Rwanda). Gile mine, Zambezia, Maria III; Alto Ligonha (Mozambique). Maine (USA). Queensland (Australia).
Cordierite (Кордьерит)	15	Dyadovtsi vill., Ardino reg.; Galabovo vill., Smolyan reg. (Bulgaria). Dolni

1	2	3
- <i>Pinite</i> (Пинит)	1	Bory, Moravia (Czech Republic). Michimato; Ashio, Tochigi Pref. (Japan). (Sri Lanka). Gads Hill, Liena, Tasmania (Australia).
Sekaninaite (Секенинаум)	6	Dolni Bory, Moravia (Czech Republic).
2.1.3.2. Osumilite group		
Osumilite (Осумилум)	6	Funtanafigu, Cagliari, Monte Arci, Sardinia; Cava Funtanafigu, Marrubin (Italy). Shimizu, Kagoshima; Magahama, Hajato (Japan).
Milarite (Миларум)	1	Vezna, Moravia (Czech Republic).
Sogdianite (Согуанум)	2	Dara-Pioz (Tadzhikistan).
Emeleusite (Емелеусум)	1	Igdlutalik (Greenland).
Steenstrupine (Стенструпин)	1	Taseq slope, Ilimaussaq (Greenland).
2.2. Zr-Ti-Nb assemblages		
2.2.1. Axial		
2.2.1.1. Neptunite - Narsarsukite group		
Neptunite (Нептулум)	10	Khibiny, Kola pen. (Russia). Habri, Tisnova (Czech Republic). Kvanefeld, Ilimaussaq (Greenland). San Benito Co., California (USA). Mt. St.-Hilaire, Quebec (Canada).
Mangan - neptunite (Манганнептулум)	1	Khibiny, Kola pen. (Russia).
Narsarsukite (Нарсарсукум)	2	Igdlutalik (Greenland). Mt. St.-Hilaire, Quebec (Canada).
Lorenzenite (Лоренценум)	8	Khibiny, Kola pen. (Russia). Poudrette quarry, Mt. St.-Hilaire, Quebec (Canada).
Tinaksite (Тинаксум)	2	Murunskii complex, Yakutia (Russia).
Zorite (Зорум)	1	Lovozero, Kola pen. (Russia).
2.2.1.2. Kostylevite group		
Umbite (Умбум)	1	Lovozero, Khibiny, Kola pen. (Russia).
2.2.2. Planar		
2.2.2.1. Astrophyllite group		

1	2	3
Astrophyllite (Астрофилум)	10	Khibiny, Kola pen. (Russia). Nana-Pegmatite, Ilimaussaq (Greenland). Mt. St.-Hilaire, Quebec (Canada).
Kupletskite (Куплетскит)	1	Little Rock, Arizona (USA).
Lamprophyllite (Лампрофилум)	6	Kirovskii mine, Kukisvumchorr Mt., Khibiny, Kola pen. (Russia).
Penkvilksite (Пенквилксит)	2	Karnasurt Mt., Lovozero, Kola pen. (Russia).
Baratovite (Баратовит)	1	Dara- Pioz (Tadzhikistan).
Raite (Раит)	1	Karnasurt Mt., Lovozero, Kola pen. (Russia).
2.2.2.2. Baotite - Joaquinite group		
Muirite (Муирит)	1	Fresno Co., California (USA).
Traskite (Траскит)	1	Fresno Co., California (USA).
Joaquinite (Джоакинит)	1	San Benita Co., California (USA).
2.2.3. Pseudoisometric		
2.2.3.1. Benitoite - Catapleiite group		
Benitoite (Бенитоит)	3	Gem mine, San Benita Co., California (USA).
Bazirite (Базирит)	1	Big Creek, Fresno Co., California (USA).
Wadeite (Вадеит)	1	Khibiny, Kola pen. (Russia).
Catapleiite (Катаплеит)	4	Khibiny, Kola pen. (Russia). Ilimaussaq (Greenland). Mt. St.-Hilaire, Quebec (Canada). Little Rock, Arizona (USA).
Gaidonnayite (Гейдонеит)	1	Rasvumchorr Mt., Khibiny, Kola pen. (Russia).
2.2.3.2. Dalyite - Eudialyte group		
Armstrongite (Армстронгит)	4	Khan Bogdo (Mongolia).
Elpidite (Елпидит)	3	Khan Bogdo (Mongolia). Mt. St.-Hilaire, Quebec (Canada).
Eudialyte (Евдиалит)	36	Rasvumchorr Mt., Khibiny; Lovozero; Kola pen. (Russia). Ilimaussaq (Greenland). Norra Karr, Granna (Sweden). Kipawa, Quebec (Canada).
Lovozerite (Ловозерит)	1	Rasvumchorr Mt., Khibiny, Kola pen. (Russia).

1	2	3
2.3. Ca-Mn-Ba Assemblages		
2.3.1. Axial		
2.3.1.1. Pectolite group		
Pectolite (Пектолит)	12	Aheloy, Burgas reg. (Bulgaria). Marburg (Germany). Kostalov; Zelechy, N. Bohemia (Czech Republic). Kirovskii mine, Kukisvumchorr Mt., Khibiny, Kola pen. (Russia). Mt. St.-Hilaire; Jeffrey mine, Quebec (Canada).
Serandite (Серандит)	2	Mt. St.-Hilaire, Quebec (Canada).
Fenaksite (Фенаксит)	1	Rasvumchorr Mt., Khibiny, Kola pen. (Russia).
Canasite (Канасит)	2	Khibiny, Kola pen.; Murunskii complex, Yakutia (Russia).
Agrellite (Агрелит)	3	Kipawa complex, Quebec (Canada).
2.3.1.2. Wollastonite - Rhodonite group		
Wollastonite (Волластонит)	32	Beliya uluk, Rila monastery, Petlite summit, Rila Mt.; Burdtse mine, M. Turnovo reg. (Bulgaria). Dognecea, Banat (Romania). (Czech Republic). Gualba, Catalonia (Spain). Dalnegorskoye dep. (Russia). Kushiro, Hiroshima Pref. (Japan). Zulova bei Jesenik; Bludov; Mount Everest, Himalayas. Jeffrey mine, Quebec (Canada).
Rhodonite (Родонит)	41	Sharenka, Gradishte, Osikovo mines - Madan reg.; Govedarnika mine, Luki reg.; Enyovche mine, Kurdzhali reg.; Madzharovo reg.; Ruen mine, Osogovo Mt.; Obrochishte vill., Dobrich reg. (Bulgaria). Chvalteice (Czech Republic). Sacaramb (Romania). Langban (Sweden). Sedel'nikovo, Adervielle mine, Louron (France). Ural (Russia). Abata mine, Gumma Pref. (Japan). Broken Hill (Australia). Franklin Hill, New Jersey (USA). Akatore Creek, South Island (New Zealand).
Xonotlite (Ксонолит)	4	Golyamo Kamenyane vill., Krumovgrad reg. Igljika vill., Yambol reg. (Bulgaria).
Bustamite (Бустамит)	7	Gradishte mine, Madan reg.; Govedarnika mine, Luki reg.; Ruen mine, Osogovo Mt. (Bulgaria). Meldon, Devonshire (England). Langban (Sweden).
Pyroxmangite (Пироксманзит)	2	Chvalteice (Czech Republic). El Molar (Spain).

1	2	3
Babingtonite (Бабингтонит)	3	Baveno, Piemonte (Italy). Goose Creek quarry, Leesburg, Virginia (USA).
Manganbabingtonite (Манганбабингтонит)	2	Iron Cap mine, Arizona (USA).
Miserite (Мизерит)	3	Dara- Pioz (Tadzhikistan). Mt. St.-Hilaire, Quebec (Canada).
Neotocite (Неотокит)	2	Kremikovtzi dep. Sofia reg. (Bulgaria).
Nambulite (Намбулит)	1	Gozaisho mine, Fukushima pref. (Japan).
Charoite (Чароит)	12	Murunskii complex, Yakutia (Russia).
Yuksporite (Юкспорит)	1	Khibiny, Kola pen. (Russia).
2.3.2. Planar		
2.3.2.1. Reyerite - Tobermorite group		
Gyrolite (Гиролит)	2	Erachimo riv., Siberia (Russia). Khandivali quarry, Bombay (India).
Okenite (Окенит)	4	Poona (India).
Tobermorite (Тоберморит)	2	Heguri, Chiba pref. (Japan).
Clinotobermorite (Клинотоберморит)	2	Fuka mine, Okayama Pref. (Japan).
Plombierite (Пломбиерит)	3	Scawt Hill, Antrim Co., Northern Ireland (Great Britain). Crestmore quarry, Riverside Co., California (USA).
Tungusite (Тунгусит)	1	Tura, Nizhnyaya Tunguska, Siberia (Russia).
Fedorite (Федорит)	1	Murunskii complex, Yakutia (Russia).
2.3.2.2. Arophyllite group		
- [<i>Arophyllite</i>] [<i>Анофилит</i>]	62	Parvenets vill., Yambol reg.; Lipata quarry, Vitosha Mt., Sofia reg.; Avren vill., Gruevo vill., Kurdzhali reg. Krumovgrad reg. (Bulgaria). King George isl., South Shetland islands (England). Tyrol (Austria). Labe riv. (Czech Republic). Andreasberg (Germany). Avam riv., Siberia (Russia). Akhaltsikhe (Georgia). Pashan, Poona, Maharashtra; Tunnar; Bombay (India). Mt. St.-Hilaire, Quebec (Canada). Fairfax quarry, Centreville, Virginia (USA). Minas Gerais; Rio das Antas, Rio Grande do Sul (Brazil). Basalt quarry, Victoria (Australia).
Fluoraprophyllite (Флуоропрофилит)	2	Akhaltsikhe (Georgia). Pioneer quarry, Victoria (Australia).

1	2	3
Cavansite (Кавансит)	3	Owyhee Dam, Oregon (USA). Poona (India).
Pentagonite (Пентагонит)	1	Wagholi quarries, Poona (India).
Carletonite (Карлетонит)	1	Mt. St.-Hilaire, Quebec (Canada).
2.3.2.3. Natrosilite group		
Natrosilite (Напросилит)	1	Alluaiv Mt., Lovozero, Kola pen. (Russia).
Makatite (Макамит)	1	Lovozero, Kola pen. (Russia).
Revdite (Ревдит)	1	Lovozero, Kola pen. (Russia).
2.3.2.4. Pyrosmalite group		
Pyrosmalite (Пиросмалит)	1	Nordmark (Sweden).
Bementite (Бементит)	1	Franklin Furnace, New Jersey (USA).
Friedelite (Фриделит)	1	Sterling Hill, New Jersey (USA).
Shafranovskite (Шафрановскит)	1	Rasvumchorr Mt., Khibiny, Kola pen. (Russia).
Akatoreite (Акаморейт)	1	Otago (New Zealand).
2.3.2.5. Sanbornite - Gillespite group		
Sanbornite (Санборнит)	6	Big Creek; Fresno Co., California (USA). El Rosario (Mexico).
Walstromite (Уолстромит)	1	Fresno Co., California (USA).
Macdonaldite (Макдоналдит)	1	Fresno Co., California (USA).
Krauskopfite (Краускопфит)	1	Fresno Co., California (USA).
Gillespite (Гилеспит)	3	Big Creek, Fresno Co., California (USA). El Rosario (Mexico). Yukon (Canada).
Verplanckite (Верпланкит)	1	Fresno Co., California (USA).
2.3.3. (Pseudo) - isometric		
2.3.3.1. Ertixiite group		
Pellyite (Пеллит)	2	Fresno Co., California (USA). Yukon (Canada).
2.4. Zn-Cu-Pb(U) assemblages		
2.4.2. Planar		

1	2	3
2.4.2.2. Margarosanite group		
Margarosanite (Маргаросанит)	1	Langban (Sweden).
2.4.2.3. Kinoite group		
Kinoite (Киноит)	1	Gila Co., Arizona (USA).
Ajoite (Ејџоит)	1	Navojoa, Sonora (Mexico).
2.4.2.4. Weeksite group		
Weeksite (Уиксайт)	1	Anderson mine, Yavapai Co., Arizona (USA).
2.4.3. Pseudoisometric		
2.4.3.1. Dioptase group		
Dioptase (Диоптаз)	16	Mavoio (Angola). Tsumeb (Namibia). Mindouli, Reneville, Brazzaville; M'Sesa, Shaba (Congo). Copiapo, Atacama (Chile).
Chrysocolla (Хризосола)	15	Vurli bryag mine, Burgas reg.; Tsar Asen mine, Panagyurishte reg.; Talc quarry, Ihtiman reg.; Petlite summit, Rila Mt. (Bulgaria). Altyn - Tyube (Kazakhstan). Erdenet (Mongolia). Gelb Mogreni, Akjoujt reg. (Mauritania). Magma mine, Pinal Co., Arizona; Bingham, New Mexico (USA). Copiapo, Atacama (Chile). Iron Monarch mine (Australia).
Shattuckite (Шаттукит)	1	Navojoa, Sonora (Mexico).
Plancheteite (Планшеит)	4	Gottesgabe, Herborn, Hessen (Germany). Reneville; Shaba (Congo).
2.4.3.2. Ekanite group		
Ekanite II (Еканит II)	1	Dara-Pioz (Tadzhikistan).
Umbozerite (Умбозерит)	2	Karnasurt Mt., Lovozero, Kola pen. (Russia).
3. Silicates with Si: M ²⁺ < 1:1		
3.1. Be-Al-Mg assemblages		
3.1.1. Axial		
3.1.1.1. Phenakite group		

1	2	3
Phenakite (Фенакит)	8	Volodarsk-Volynskii (Ukraine). Izumrudnye kop'и, Ural; Klichka, Transbaikalia (Russia).
Euclase (Евклаз)	1	Sargardon (Uzbekistan).
Bertrandite (Бертрандит)	1	Klichka, Transbaikalia (Russia).
3.1.1.2. Andalusite - ^ε group		
Andalusite (Андалузит)	50	Chepelare, Smolyan reg.; Dyadovtsi vill., Ardino reg.; Urdini Lakes, Rila Mt.;
- <i>Chiastolite II (Хиастолит II)</i>	3	Markova trapeza, Samokov reg.; Madzharovo reg.; Krushevets vill., Burgas reg. (Bulgaria). Villa di Chiavekkaq, Bregaglia; Vald Aran, Piemonte. (Italy). (Switzerland). Lisenz in Stubai, Tyrol; Krenzeckgruppe, Karnten (Austria). Dolni Bory, Moravia; Thove Sviny; Frymburk, Bohemia (Czech Republic). Rohan, Morbihan (France). Keivy, Kola pen. (Russia). Cap de Creus; Bosiost, lerida Provance (Spain). Hauden lake, Colorado (USA). Arkaroola (Australia).
Sillimanite (Силлиманит)	7	Chepelare, Smolyan reg.; Dyadovtsi vill., Ardino reg.; Dorkovo vill., Velingrad
- <i>Fibrolite II (Фибролит II)</i>	5	reg. (Bulgaria). Plonghin, Finestere (France). Cap de Creus (Spain).
Kyanite (Кианит)	66	Chepelare, Smolyan reg.; Prilep; Selechka Mt. (Macedonia). Capelinha (Brazil).
Mullite (Мулит)	2	Montalban (Spain). Monte arc, Oristano (Italy).
Staurolite (Ставролит)	40	Oreshnik vill., Topolovgrad reg. (Bulgaria). Finistere; Alpe. Quimper; Coray (France). Pizzo Formo Tessin; St. Gotthard (Switzerland). Petrov nad Desnou bei Sumperk (Czech Republic). Keivy, Kola pen.; Mata riv., Siberia (Russia). Fernleigh, Clarendon, Township, Ontario (Canada). Capelinha (Brazil). Mica Creek, Mount Isa, Queensland (Australia).
Тораз (Тоназ)	39	Volodarsk-Volynskii (Ukraine). Altenberg, Erzgebirge, Zwitterstock;
- <i>Rusnite (Руснит)</i>	5	Schneckenstein, Vogtland (Germany). Dobra voda, Moravia (Czech Republic). Skuleboda, Vanersborg (Sweden). Ilimaussaq (Greenland). (Niger). Minas Gerais (Brazil). Etats-Unis (French Guiana). Torrington; Inverell, New South Wales; O'Briens Ceek, near Mt. Surprise, Queensland (Australia).
Sapphirine (Сапфирин)	1	Vohimenaq (Madagascar).
Sursassite (Сюрсасит)	2	Molinello mine, Liguria (Italy). Fallota, Sursass (Switzerland).

1	2	3
3.1.1.3. Epidote - Pumpellyite group		
Zoisite (Цоузит)	17	Petlite summit, Bliznaka Lake, Rila Mt. (Bulgaria). Sintibru, Alba, Carpathians, (Romania). Leksviken, Irodelag, Lom (Norway). Morille, Salamanca. Hoy Las Minas, E. of Huijo, El Progreso, Dept. (Guatemala).
- <i>Tbulite (Туаит)</i>	4	
Clinzoisite (Клиноцоузит)	13	Yavuz dere river, Sakar Mt.; Krumovo vill; Krumovgrad reg. Seven Rila Lakes, Rila Mt.; Chepelare, Smolyan reg.; Lukovets river, Asenovgrad reg.; Nova Mahala vill., Batak reg. (Bulgaria). Val Suza (Italy).
Epidote (Енугом)	69	Deveti Septemvri mine, Madan reg.; Dorkovo vill., Velingrad reg. Sandanska Bistritsa riv.; Nova Mahala vill., Batak reg.; Stoikite vill., Varbovo vill., Smolyan reg.; Chernomorets quarry, Burgas reg.; Kamilski Dol vill., Kurdzhali reg.; Madzharovo reg.; Ivaylovgrad Dam, Strandzha mine, M. Turnovo reg.; Seven Rila Lakes, Urdini Lakes, Rila Mt.; Vitosha Mt., Sofia reg. (Bulgaria). Tyrol (Austria). Hannover (Germany). Ukrainka vill., Crimea (Ukraine). Strzegom (Poland). Dunje (Yugoslavia). (Switzerland). Dashkesan (Azerbaijan). Tormiq (Pakistan). Dhaulagiri summit, Himalayas. Sierra San Pedro (Mexico). Syockdale quarry, Victoria (Australia).
Piemontite (Пиомонит)	5	Praborna mine; Traversella; Piemonte (Italy). Anti - Atlas Mt. (Morocco)
Allanite (Аланит=Орнит)	27	Vacha riv., Krichim reg. Kalkovo vill., Plana Mt., Lipata quarry, Vitosha Mt., Sofia reg. (Bulgaria). Rauris, Salzburg (Austria). Luzenac (France). Amur reg. (Russia). Tiro de Estrella mine, New Mexico (USA).
Pumpellyite (Mn) (Пумпелит (Mn))	1	Ochiai mine, Yamanashi (Japan).
Pivaite (Илваит)	15	Osikovo, Mogilata mines - Madan reg.; Byal Izvor vill., Ardino reg. (Bulgaria). Kikladhes islands (Greece). Rio Marina mine; Torre di Rio; Elba (Italy). Ilimaussaq (Greenland). Dalnegorskoye dep. (Russia).
3.1.2. Planar		
3.1.2.2. Prehnite group		
Prehnite (Пренит)	29	Lozen Mt., Vitosha Mt., Sofia reg. (Bulgaria). Steinperf, Marburg; Harz (Germany). Ukrainka vill., Crimea (Ukraine). Pegueres, Pyrenees (France).

1	2	3
Prehnite (continuation)		Markovice; Horky (Czech Republic). Erachimo riv., Siberia (Russia). Tiro de Estrella mine, New Mexico (USA). Prospect quarry, New South Wales (Australia).
3.1.3.(Pseudo) - isometric		
3.1.3.1. Helvite group		
Danalite (Даналит)	2	Rockport, Massachusetts (USA). Mt. St.-Hilaire, Quebec (Canada).
Helvite (Хелвин)	2	Ilmaussaq (Greenland). Mt. St.-Hilaire, Quebec (Canada).
Genthelvite (Гентхелвин)	1	Mt. St.-Hilaire, Quebec (Canada).
Tugtupite (Тугтупит)	1	Kvanefjeld, Ilmaussaq (Greenland).
Zunyite (Зунит)	1	
- <i>Dillnite (Диллит)</i>	1	Azegour (Morocco). Banska Stavnica (Slovakia).
3.1.3.2. Chkalovite - Gadolinite group		
Chkalovite (Чкаловит)	1	Karnasurt Mt., Lovozero, Kola pen. (Russia).
Gadolinite (Гадолинит)	2	Finbo (Sweden). Iveland (Norway).
3.1.3.3. Gugianite - Meliphanite group		
Meliphanite (Мелифанит)	1	Langesundfjord (Norway).
Leucorphanite (Левкофан)	1	Mt. St.-Hilaire, Quebec (Canada).
Chiavenite (Чиавенит)	1	Tvedalen (Norway).
Lovdarite (Ловдарит)	1	Karnasurt Mt., Lovozero, Kola pen. (Russia).
3.1.3.4. Melilite group		
Melilite (Меллит)	1	Osa, Rome (Italy).
Åkermanite (Окерманит)	1	Kovdor, Kola pen. (Russia).
Gehlenite (Гелинит)	4	Apuani (Romania). Kushiro, Hiroshima pref.; Fuka mine, Bitchu, Okayama pref. (Japan).
Bicchulite (Бичулит)	1	Fuka mine, Bitchu, Okayama pref. (Japan).
Zunyite (Зунит)	1	Azegour (Morocco).

1	2	3
3.1.3.5. Garnet group - [<i>Garnet</i>] [<i>Гранат</i>]	31	Dyadovtsi vill., Latinka vill., Ardino reg.; Dolen vill., Zlatograd reg.; Vishteritsa quarry, W. Rhodopi Mts; Chernichevo vill., Krumovgrad reg.; Chepelare, Galabovo vill., Banite vill., Smolyan reg.; Musala summit, Irechek summit; Kalin river, Eleshnitsa river, Pastra vill., Rila Mt.; Gorna Dikanya vill., Verila Mt.; Ihtiman reg.; Breznik reg.; Vitosha Mt., Sofia reg. Gradishte mine, Madan reg.; Burdtse mine, M. Turnovo reg. (Bulgaria). Dognecea, Banat (Romania). Tyrol (Austria). Selechka Mt. (Macedonia). Maikhura (Tadzhikistan). Pribyslavice (Czech Republic). Kalmora, Norberg; Ultevis (Sweden). Neudorf mine, Harz (Germany). San Piero in Campo, Elba; Val di Rabbi, Trento; Valle Ranello; Praborna; Val Passiria (Italy). Chupa, Karelia; Keivy, Kola pen.; Chelyabinsk, Ural; Mir, Yakutia; Dalnegorskoye dep., Slyudyanka, Siberia; Ilmeny, Ural (Russia). Langtang; Gahesh Range; Dhaulagiri summit, Himalayas (Nepal). Fuka mine, Bitchu, Okayama pref. (Japan). Alto Ligonha; Cuamba (Mozambique). Tanco mine (Canada). Capelinha (Brazil). Broken Hill (Australia).
Pyrope (Пуропе)	4	Trebnice (Czech Republic).
Almandine (Алмандин) - <i>Hessonite (Хесонит)</i>	12 1	Dolen vill., Zlatograd reg.; Topolovgrad reg. (Bulgaria). Silesia (Poland). Kalvola (Finland). (Norway). Ural; Kitelya, Karelia (Russia). Roxbury, Connecticut; Fort Wrangel, Alaska (USA).
Spessartine (Спесартин)	3	Latinka vill., Ardino reg. (Bulgaria). Grants Canyon, New Mexico (USA). Kintore open cut, Broken Hill (Australia).
Grossular (Гросулар)	51	Seven Rila Lakes, Urdini Lakes, Beliya ulik, Rila monastery, Petlite summit, Rila Mt.; Propada mine, M. Turnovo reg. (Bulgaria). Biudov u Sumperka (Czech Republic). Kukhilal, Pamir (Tadzhikistan). Sauland, Telemark (Norway). Pitigliano, Grosseto prov., Tuscany (Italy). Dalnegorskoye dep.; Vilyui riv., Yakutia; Siberia; Primorye (Russia). Dorogiwa Ontcrop, Fuka mine, Bitchu, Okayama Pref. (Japan).

1	2	3
Andradite (Андррагит)	23	Dolni Okol vill., Sofia reg.; Chepelare, Smolyan reg.; Seven Rila Lakes, Urdini
- <i>Melanite (Меланит)</i>	2	Lakes, Rila Mt.; M. Turnovo reg.; Erma river, Zlatograd reg. (Bulgaria). Ocna
- <i>Demantoid (Демантоид)</i>	3	de Fier, Banat (Romania). Val Malenco, Lombardy (Italy). Dalnegorskoye dep.; Bobrovka river, Ural (Russia). Himalayas.
Uvarovite (Уваровит)	5	Outokumpu (Finland). Saranovskoye deposit, Ural (Russia).
Schorlomite (Шорломит)	1	Afrikanda, Kola pen. (Russia).
Vezuvianite (Везувиянит)	44	Petlite summit, Mala Urdina river, Rila monastery, Rila Mt.; Eleshnitsa vill., Blagoevgrad reg.; Hrabrino vill., Plovdiv reg.; Dolni Okol vill., Sofia reg. (Bulgaria). Telemark; Myrseter (Norway). Pitigliano, Grosseto prov., Tuscany; Vesuvius (Italy). Morille, Salamanca, Spain. Zuluva (Czech Republic). Potoja cuka (Yugoslavia). Canary Islands, Atlantic Ocean. Ural; Vilyui R. (Russia). Lake Jaco, Chihuahua (Mexico). Jeffrey Mine, Asbestos, Richmond Co, Quebec (Canada). Crestmore, Riverside Co., California (USA).
Wiluite (Вилуит)	1	Vilyui riv., Yakutia (Russia).
- <i>Achtaragdite</i>	1	Vilyui riv., Yakutia (Russia).
(Ахтарандит-псевдоморфоза по гросулар)		
3.1.3.6. Olivine group		
- [<i>Olivine</i>] [<i>Оливин</i>]	19	Butovo vill., V. Turnovo reg. (Bulgaria). Starch, Zelezny Brod; Smrci (Czech Republic). Eifel; Ries; Vogelsberg (Germany). Langban (Sweden). Canary Islands, Atlantic Ocean. Lanzarote (Spain). Salzburg (Austria).
Forsterite (Форстерит)	3	Aldan, Yakutia; Pribaikalskii massif, Kovdor, Kola pen. (Russia).
Fayalite (Фаялит)	1	Pirdop. (Bulgaria). Dannemora (Sweden).
- <i>Knebelite (Кнебелит)</i>	1	
3.1.3.7. Humite group		
Chondrodite (Хондродит)	2	Aker; Kaveltorp (Sweden).
Clinohumite (Клинохумит)	2	Bela reka, N. Pirin Mt. (Bulgaria).
3.2. Zr-Ti-Nb assemblages		
3.2.1. Axial		
3.2.1.1. Wöhlerite group		

1	2	3
Rosenbushite (Розенбушит)	1	Karr, Smaland (Sweden).
Hiortdahlite (Хиортдалит)	1	Cava San Vito, Monte Somma, Vesuvius (Italy).
Niocalite (Ниокалит)	1	Quebec (Canada).
3.2.1.2. Keldyshite group		
Keldyshite (Келдышит)	1	Takhtarvumchorr, Khibiny, Kola pen. (Russia).
Parakeidyshite (Паракелдышит)	2	Alluaiv Mt., Lovozero, Kola pen. (Russia).
3.2.1.3. Aenigmatite group		
Aenigmatite (Енигматит)	1	Ilmaussaq (Greenland).
Mosandrite (Мозандрит(Рункит))	3	Loven, near Brevik, Langesundfjord (Norway).
Chevkinite (Чевкинит)	1	Ilmeny, Ural (Russia).
3.2.2. Planar		
3.2.2.1. Murmanite group		
Natisite (Натисит)	1	Vuonnemijok river, Khibiny, Kola pen. (Russia).
Murmanite (Мурманит)	5	Khibiny; Lovozero, Kola pen. (Russia).
Epistolite (Епистолит)	4	Karnasurt Mt., Lovozero, Kola pen. (Russia). Kvanefjeld, Ilmaussaq (Greenland).
Lomonosovite (Ломоносовит)	3	Kola pen. (Russia). Kvanefjeld, Ilmaussaq (Greenland).
Tundrite (Тундрит)	1	Kangerdluarssuk (Greenland).
3.2.2.2. Batisite - Bafertisite group		
Bafertisite (Бафертисит)	1	Dara - Pioz (Tadzhikistan).
Fresnoite (Фресноит)	1	Big Creek, Fresno Co., California (USA).
Nafertisite (Нафертисит)	1	Nanna pegmatite, Igaliko (Greenland).
3.2.3. Pseudoisometric		
3.2.3.1. Zircon group		

1	2	3
Zircon (Циркон)	30	Lozen Mt., Sofia reg.; Antonivanovtsi quarry, Smolyan reg. (Bulgaria). (Ukraine). Bar Houes Sai (Norway). Lovozero; Ilmeny; Vishnevye Gory, Urals; Kovdor, Kola pen. (Russia). (Laos). Jebel Tuwalah (Saudi Arabia). Alto Ligonha (Mozambique). Mount Malosa, Zomba, Malawi (East Africa). Kipawa compl., Quebec (Canada). Anakite, Queensland (Australia).
Zirsinalite (Цирсиналит) 3.2.3.2. Titanite group	1	Rasvumchorr Mt., Khibiny, Kola pen. (Russia).
Titanite (Титанит)	33	Bliznaka Lake, Rila Mt.; Shipeto, Lipata quarry, Vitosha Mt., Sofia reg.; Antonivanovtsi quarry; Stoikite vill.; Smolyan reg.; Chernomorets quarry, Burgas reg. (Bulgaria). Val di Vizze, Tyrol (Italy). Elbachalm, Amertal (Austria). Val Canaria, Tessin (Switzerland). Slyudyanka, Siberia; Rasvumchorr Mt.; Kukisvumchorr Mt., Khibiny (Russia). Little Rock, Arizona; Tiro de Estrella, Lingoln Co., New Mexico (USA). Capelinha, Minas Gerais (Brazil).
Fersmanite (Ферсманит) 3.2.3.3. Shcherbakovite group	2	Khibiny, Kola pen. (Russia).
Labuntsovite (Лабунцовит)	1	Khibiny, Kola pen. (Russia).
Korobitsynite (Коробитсинит)	1	Alluaiv Mt., Lovozero, Kola pen. (Russia).
Komarovite (Комаровит)	1	Karnasurt Mt., Lovozero, Kola pen. (Russia).
Koashvite (Коашвит) 3.3. Ca(TR)-Mn-Ba assemblages 3.3.1. Axial 3.3.1.1. Spurrite - Cuspidine group	1	Vuonnemijok river, Khibiny, Kola pen. (Russia).
Spurrite (Спъррит)	4	Fuka mine, Bitchu, Okayama pref. (Japan).
Scawtite II (Скаутит II)	1	Fuka mine, Bitchu, Okayama pref. (Japan).
Tilleyite (Тилеит)	1	Fuka mine, Bitchu, Okayama pref. (Japan).
Bultfonteinite (Булфонтейнит)	1	Fuka mine, Bitchu, Okayama pref. (Japan).

1	2	3
Afwillite (Афвилит)	2	Bassejour; Puy de Dome (France).
Thaumasite (Таумасит)	5	Petlite summit, Rila Mt. (Bulgaria). Siberia (Russia). Fairfax quarry, Virginia (USA).
3.3.1.2. Thortveitite group		
Thalenate (Таленит)	1	Askagen, Vermland (Sweden).
Haradaite (Харадаит)	1	Noda - Tamagawa mine, Iwate pref. (Japan).
3.3.1.3. Gageite group		
Saneroite (Санероит)	1	Molinelo mine, Genova (Italy).
3.3.2. Planar		
3.3.2.1. Jasmundite - Macfallite group		
Jennite (Дженит)	1	Commercial quarry, Crestmore, California (USA).
3.3.3. Pseudoisometric		
3.3.3.1. Larnite - Kilchoanite group		
Merwinite (Мервинит)	1	Iglika vill., Yambol reg. (Bulgaria).
Rankinite II (Ранкинит II)	1	Fuka mine, Bitchu, Okayama pref. (Japan).
3.3.3.2. Tephroite - Leucophoenicite group		
Tephroite (Тепфроит)	1	Broken Hill (Australia).
Sonolite (Сонолит)	1	Abata mine, Gumma pref. (Japan).
3.3.3.3. Cerite - Iimoriite group		
Cerite (Церит)	1	Bastnaes (Sweden).
3.4. Zn-Cu-Pb(U) assemblages		
3.4.1. Axial		
3.4.1.1. Willemite - Hemimorphite group		
Willemite (Вилемит)	3	Vrncice (Czech Republic). Tsumeb (Namibia).

1	2	3
Hemimorphite (Хемиморфит)	7	Govedarnika mine, Luki reg.; Chepelare, Smolyan reg. (Bulgaria). Santa Eulalia; Mapimi, Durango (Mexico).
3.4.2. Planar		
3.4.2.1. Clinohedrite group		
Stringhamite (Стрингхамит)	1	Christmas mine, Arizona (USA).
3.4.2.3. Uranophane group		
Uranophane (Уранофан)	3	Hagendorf (Germany). Grants, New Mexico (USA).
Sklodowskite (Склодовскит)	1	Kamoto, Shaba (Congo).
Cuprosklodowskite (Купросколовскит)	2	Musonoi, Kalongwe, Shaba (Congo).
Kasolite (Казолит)	1	Grury, Saone-et-Loire (France).
3.4.3. (Pseudo) - isometric		
Eulytine (Евлитин)	1	Schneeberg, Saxony (Germany).
4. Silicates with boron		
4.1. Axial		
4.1.1. Dumortierite group		
Dumortierite (Дюмортиерит)	4	Ak-Tash (Uzbekistan). Ambatolahindzhary (Madagascar). Etembe (Namibia). Bokira, Bahia (Brazil).
Kornerupine (Корнерупин)	4	Waldheim, Saxony (Germany). Harts Range, Northern Territory (Australia).
4.1.2. Tourmaline group		
- [<i>Tourmaline</i>] [<i>Турмалин</i>]	120	Hlyabovo vill., Topolovgrad reg.; Bachkovo vill., Smolyan reg.; Latinka vill.,
- <i>Indigolite</i> (<i>Индиголит</i>)	2	Ardino reg.; Velingrad reg.; Urdini Lakes, Rila Mt. (Bulgaria). Cyrilov, Pikarec, Dolni Bory; Moravia (Czech Republic). Finistere (France). San Piero, Elba; Val di Vizze, Tyrol (Italy). Hagendorf; Neumule (Germany). Rauris Valley, Salzburg (Austria). Turgenevskoye deposit, Far East; Izumrudnye kopi, Ural; Aldan, Yakutia (Russia). Liaoning (China). Langtang, Himalayas (Nepal). Muiane mine,

1	2	3
Kornerupine and varieties (continuation)		Alto Ligonha (Mozambique). Afghanistan. Betroka (Madagascar). Lazarevskaya station (Antarctida).
Buergerite (Бюргерит)	1	Kovachevtsi vill., Samokov reg. (Bulgaria).
Dravite (Дравит)	7	Stipon quarry, Ihtiman reg. (Bulgaria). Dravograd (Slovenia). Yinnietharra; May Downs, Queensland (Australia).
Elbaite (Елбаит)	7	Rozna; Nova Ves; Dobra Voda, Moravia (Czech Republic). Haapaluoma, (Finland). Kola pen. (Russia). Kalbinskii Range (Kazakhstan). Alto Ligonha, (Mozambique). Queen mine, Pala district, San Diego; Mesa Grande, California (USA). Conselheiro Pena district, Minas Gerais (Brazil).
- <i>Rubellite (Рубеллит)</i>	17	
- <i>Verdelite (Верделит)</i>	2	
Feruvite (Ферувит)	15	Belite brezi, Marchaevsko kale, Shipeto, Lipata quarry, Vitosha Mt., Sofia reg. (Bulgaria).
Schorl (Шерл)	23	Dolni Okol vill., Vladaya vill, Sofia reg.; Markova trapeza, Dragoshinovo vill., Samokov reg. (Bulgaria). Radanice; Brno, Moravia; Dolni Bory; Pikarec; Nova Ves (Czech Republic). Pakistan. Alto Ligonha (Mozambique). Ynniethara; Tourmaline Hill Arkaroola Station Nth. Funders Ranges (Australia).
Uvite (Увит)	1	Pierrepoint, New York (USA).
4.1.4. Titanaramellite group		
Titanaramellite (Титантарамеллит)	1	Fresno Co., California (USA).
4.2. Planar		
4.2.1. Howlite group		
Howlite (Хаулит)	1	Windsor, Nova Scotia (Canada).
Oyelite II (Ойелит II)	1	Fuka mine, Bitchu, Okayama pref. (Japan).
4.2.2. Leucosphenite group		
Leucosphenite (Левкофенит)	1	Karnasurt Mt., Lovozero, Kola pen. (Russia).
4.3. (Pseudo) - isometric		
4.3.1. Axinite group		

1	2	3
Ferro - axinite (Фероаксинум)	14	Vitoshka Mt., Sofia reg. (Bulgaria). Arbizon, Pyrenees; Grand Pic de Belledonne, Bourg d'Oisans, Ysere (France). Freiberg; Elbingerode, Harz (Germany). Dalnegorskoye dep. (Russia). Obira, Kyushu (Japan). Iron Cap Mine, Graham Co., Arizona (USA). Lake Cooper quarry, Victoria (Australia).
Manganaxinite (Манганаксинум)	2	Omiya, Kyoto (Japan). Iron Cap Mine, Graham Co., Arizona (USA)
Tinzenite (Тинценум)	4	Falotta, Tinzen (Switzerland). Molinelomine, Genova (Italy). Ananai mine, Tosayameda (Japan).
Serendibite (Серендибум)	1	Aldan, Yakutia (Russia).
Harkerite II (Харкерит II)	1	Sayak-IV (Kazakhstan).
4.3.2. Danburite - Datolite group		
Danburite (Данбурит)	11	Piz Miez, Graubunden (Switzerland). Dalnegorskoye dep. (Russia). Gaurdak (Turkmenia).
Datolite (Датолит)	10	Bologna (Italy). Avam river, Siberia; Dalnegorskoye dep. (Russia). Lane quarry, Massachusetts (USA).
5. Another silicates with additional anions		
5.1. Silicates with semimetallic (AsO ₃ , AsO ₄ et al.) groups		
5.1.1. Ardennite group		
Ardennite (Аргенит)	5	Salm-Chateau (Belgium).
Inesite (Инесит)	1	Hodrusa (Slovakia).
5.1.2. Dixenite - Chapmanite group		
Chapmanite (Чапманит)	1	Smilkov (Czech Republic).
5.1.3. Welshite group		
Welshite (Уелшит)	1	Vicenza (Italy).
5.2. Silicates with PO ₄ - anions		

1	2	3
Vuonnemite (Вуонемит)	1	Karnasurt Mt., Lovozero, Kola pen. (Russia).
Bornemanite (Борнеманит)	2	Karnasurt Mt., Lovozero, Kola pen. (Russia).
Phosinaite (Фосинаит)	1	Karnasurt Mt., Lovozero, Kola pen. (Russia).
Yoshimuraite (Йошимураит)	1	Tonohata mine, Iwate pref. (Japan).
Perhamite (Перхамит)	5	Tom's Phosphate Quarry, Kapunda. (Australia).
5.3. Silicates with SO_4 - anions		
Latiumite (Латиумит)	3	Sacrofano, Lazio; Pitigliano, Grosseto, Tuscany (Italy).
Tuscanite (Тусканит)	2	Sacrofano quarry, Roma (Italy).
Delhayelite (Делхаелит)	2	Khibiny, Kola pen. (Russia).
5.4. Silicates with CO_3 - anions		
Fukalite (Фукалит)	1	Fuka mine, Bitchu, Okayama pref. (Japan).

References

- DANA J. 1901 The system of Mineralogy. Descriptive Mineralogy. Sixth edition by Edward Salisbury Dana. Chapman & Hill, Ltd., London, 987 p.
- ESPENSHADE E., MORRISON J. 1983. Goode's World Atlas. 16th edition. Rand Mc Nalli & Co., U.S.A., 368 p.
- EVSEEV A. 2000a. Geographical names in mineralogy. Index. Part I. A-Z. Moscow, 269 p. (In Russian).
- EVSEEV A. 2000b. Geographical names in mineralogy. Index. Part II. A-Z. Moscow, 282 p. (In Russian).
- FLEISCHER M. 1991. Glossary of mineral species. Mineral. Rec. Inc. Tucson, Arizona, 211 p.
- KAROV C. 1996. Bulgarian mineral collections and specimens in the fund of the National Museum of Natural History at the Bulgarian Academy of Sciences. – *Hist. nat. bulgarica*, **6**: 3-9. (In Bulgarian).
- KOSTOVI I. 1993. Mineralogy. Technika, Sofia, 734 p. (In Bulgarian).
- LAZARENKO E., VINAR O. 1975. Mineralogical dictionary. Naukova dumka, Kiev, 772 p. (In Russian).
- MANDARINO J. 1999. Fleischer's Glossary of mineral species. Mineral. Rec. Inc. Tucson, Arizona, 225 p.
- PETRUSSENKO S. 1989. Development of the mineralogical collections in the National Museum of Natural History. – *Hist. nat. bulgarica*, **1**: 14-21. (In Bulgarian).
- WHEELER. 1907. *Mineralogie* (437-484). – In: Graetzer (ed.). *Collections du Musée d'histoire naturelle de Son Altesse Royale Ferdinand I Prince de Bulgarie*. Imprimerie de l'état., Sofia, 437-484 p.

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Каталог на минералните видове в Националния природонаучен музей, София (част 2) Силикати

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(Р е з ю м е)

Каталогът включва образците, инвентирани в основния минераложки фонд на Националния природонаучен музей в София до 2003 г. Втората част представя най-големият и най-разпространен минераложки клас – Силикати. От него в каталога са представени 356 минерални вида, 67 разновидности и 8 групи от недостатъчно добре диагностицирани минерали.