THE FUTURE OF MINE

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COAL

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CONTENTS

Location

Google Maps

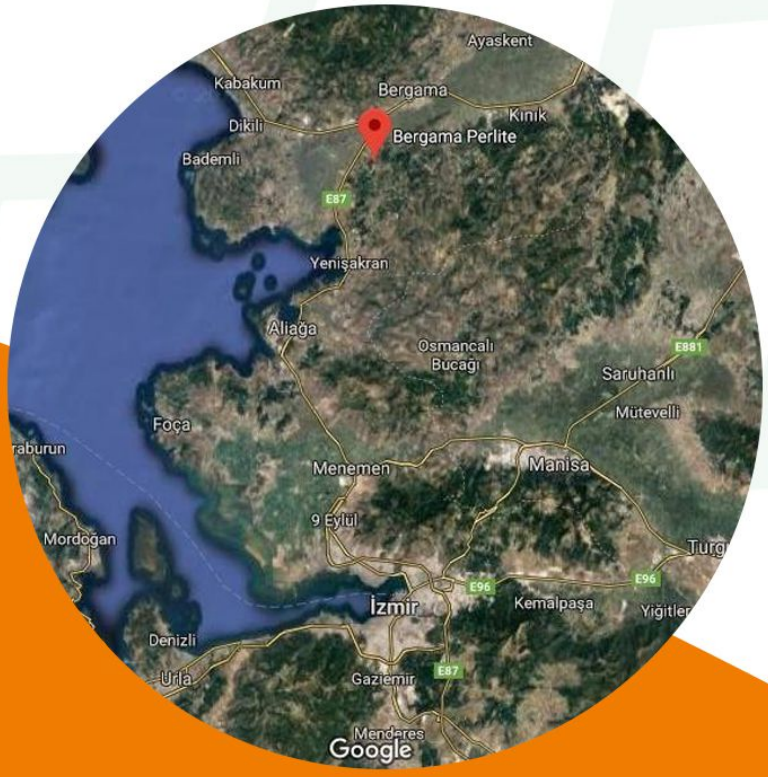
https://goo.gl/maps/jSBTbVs95J22

Address

Çalıbahçe Mah. Kilim Area Location 10 Parcel No:43 BergamaİzmirTurkey

Mesafeler

Bergama (şehir merkezi) 15 km
Dikili Limanı (dökme) 30 km
Aliağa Limanları (konteyner /dökme) 40 km
İzmir 100 km
İstanbul 425 km



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Factory Building & Land

Land Allocation Status : It was rented from the state for 49 years. The contract was made in 2006.
Land Rental Price : 3,750.00 TL/ Year
Land Area : 34.566 m2
Production Area : 7,250 m2 (closed area) – Steel council. Year of construction 2007.
Porch : 1,050 m2 (raw material stock area) – Steel council. Year of construction 2007.
Administrative Building : 450 m2 – Reinforced concrete. Year of construction 2007.
Refectory : 120 m2 – Prefabricated. Year of construction 2007.
Operation & Infrastructure Facilities / Equipments
Transformer : 400 kVA
LNG Power Plant : 32 m3
Underground Diesel Tank : 12,000 lt (with filling pump)
TIR Scale : 60 tons

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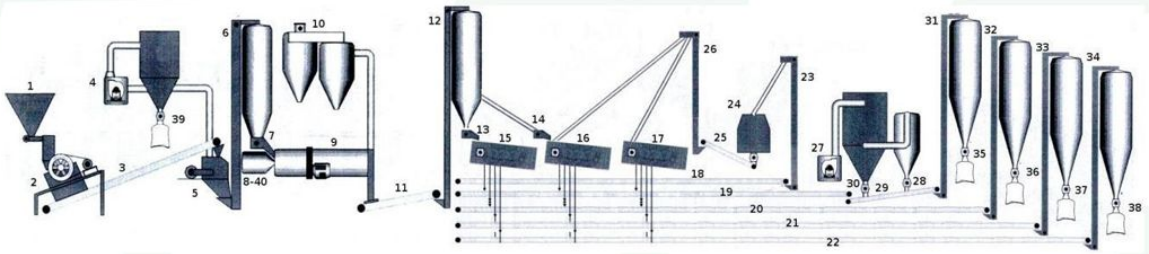
Perlite Crushing-Sieving Plant



- 3 Breaker • Dust collection filter system + Cyclones
- 3 Multi-storey Screens • 1 Moist Material. Silo + 1 Dry Malz. Silo (150 teach)
- Rotary drying oven • 4 Classified Product Silos (150 t each)
- Capacity : 140,000 tons / year • Year of manufacture: 2008

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Perlite Expansion Plant

2 Perlite Expansion Furnaces – Capacity: 12,000 tons/year

- Classical working principle. LNG is used as fuel. The following products are produced:
- Coarse grain-sized expanded perlite : Agriculture
- Medium grain expanded perlite : Construction, insulation and casting

1 Micronized Perlite Expansion Furnace – Capacity: 6,000 tons/year

Classic working principle with grinder and multi-cyclone system integrated. LNG as fuel
It is used. The following products are produced:
Expanded micronized perlite (-150 microns) : Filtration

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Perlite Based – Light – Dry Mix Mortar Production Line

This production line is specially designed for the production of lightweight building materials such as perlite-based insulation plasters and screeds. General features:
Fully automatic control - PLC
Precise microdosing
Mixer specially designed for perlite aggregate
Air type bag filling machine (Metal)
Palletizing robot (Metal – Okura)
Pallet stretching machine

Capacity: 2000,000 tons/year (May increase according to the prescription density.)
Year of manufacture 2008

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Production

Plant Construction Chemicals (Dry Mix) Production Line

- Fully automatic control - PLC
- 5 Raw material silo
- Precise microdosing
- 2 screw type bag filling machines
- Capacity: 200,000 tons/year
- Year of manufacture 2018

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Production Facility
Water Based Construction Paints Production Machine

• With this high-speed dissolver mixer, construction paints and liquid construction chemicals are produced.

• Year of manufacture 2018
•
• Capacity : 4,500 tons/year

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Heavy Construction Machinery & Vehicles

Excavator : CAT 330D L ME – Model Year: 2008

Installer : Foton FL 958G – Model Year: 2008

Telehandler : Manitou MT 1030 S

Tow Machine: Renault –48.000 km–Mod. Year: 2008

- Pickup (4x4) : Nissan Country
- Forklift : TCM – 3 ton
- Lowbed Dorse
- Damperli Dorse

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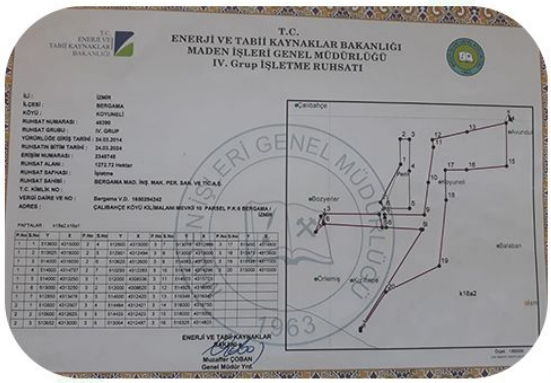
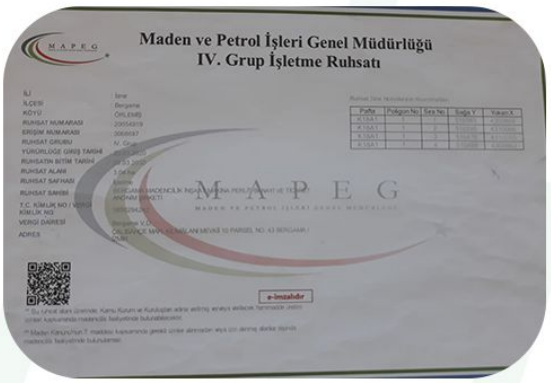
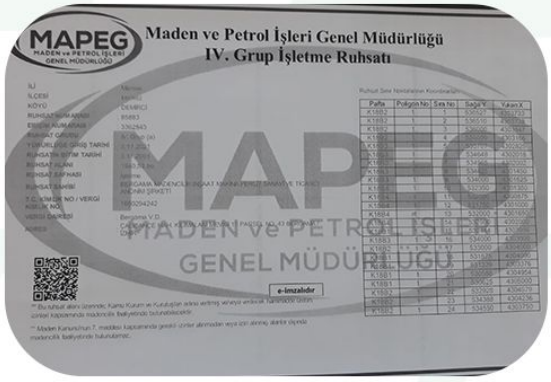
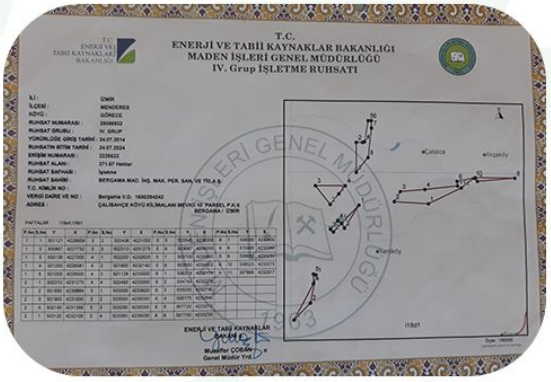
PERLITE LICENSE


T.C.
ENERJİ VE TABİİ KAYNAKLAR BAKANLIĞI
MADEN İŞLERİ GENEL MÜDÜRLÜĞÜ
IV. Grup İŞLETME RUHSATI


Maden ve Petrol İşleri Genel Müdürlüğü
IV. Grup İşletme Ruhsatı


MAPEG
Maden ve Petrol İşleri Genel Müdürlüğü
IV. Grup İşletme Ruhsatı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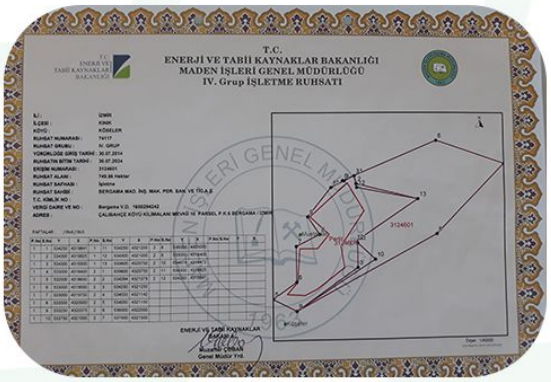
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No	Ruhsat No	Erişim No	Grup	İl	İlçe	Köy	Fabrikaya Uzaklığı (km)	Ruhsat Alanı (hektar)
1	74117	3124601	4A	İzmir	Kınık	Köseler	50 km	749,56
2	45390 (IR.7516)	2345748	4A	İzmir	Bergama	Koyuneli	10 km	1.272,72
3	20056932	2226622	4A	İzmir	Menderes	Görece	140 km	371,67
4	85883	3362843	4A	Manisa	Saruhanlı	Demirci	50 km	1.940,53
5	20054919	3068687	4A	İzmir	Bergama	Örlemiş	15 km	3,04

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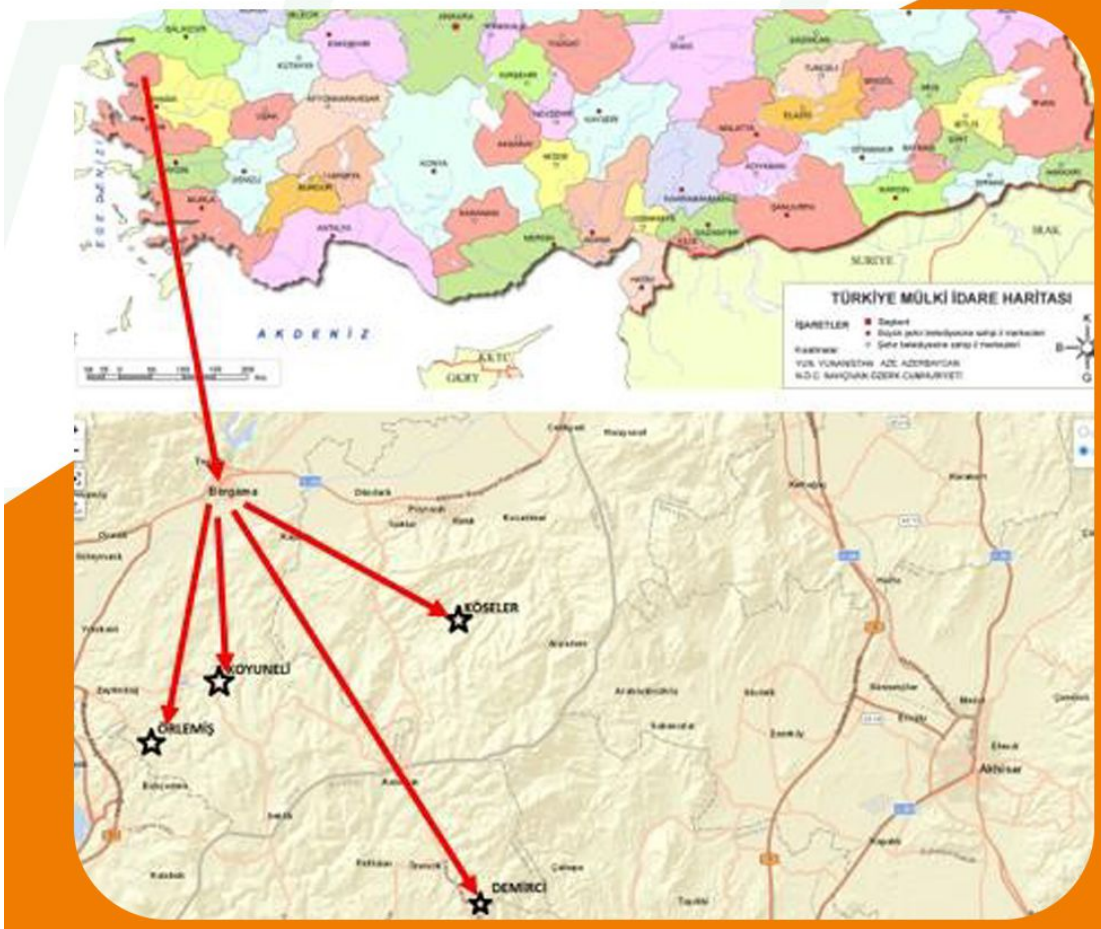
PURPOSE AND SCOPE

The aim of this study is Bergama Madencilik İnş. Mak. Per. San. Ve Tic. AŞ. Upon request, it will be in the form of determining the ore zones, faults, tectonic dokanaks, side rock relations and other geological elements of a total of 4 licensed mining sites in Bergama District of İzmir province, the information given below.

INTRODUCTION OF THE STUDY AREA

Our study area covers a mining area of approximately 3965 hectares with 4 licenses within the borders of Bergama district of Izmir province



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WORKING METHODS

In this study, first of all, the geological characteristics of the study area and its environment were determined. In particular, geological formations, faults and dokans, whose existences were determined in the survey area, were processed on a 1/25000 scale map and interpretations were made. In the light of the data obtained as a result of field findings and remote sensing studies, interpretations will be issued about the spreads of perlite ore formations and ore production.

Previous geological and drilling studies in the field have been examined and interpreted. According to these comments, after the geological examination and interpretation of the formations of perlite ores observed in the license area, the drilling points deemed appropriate or visible will be determined.

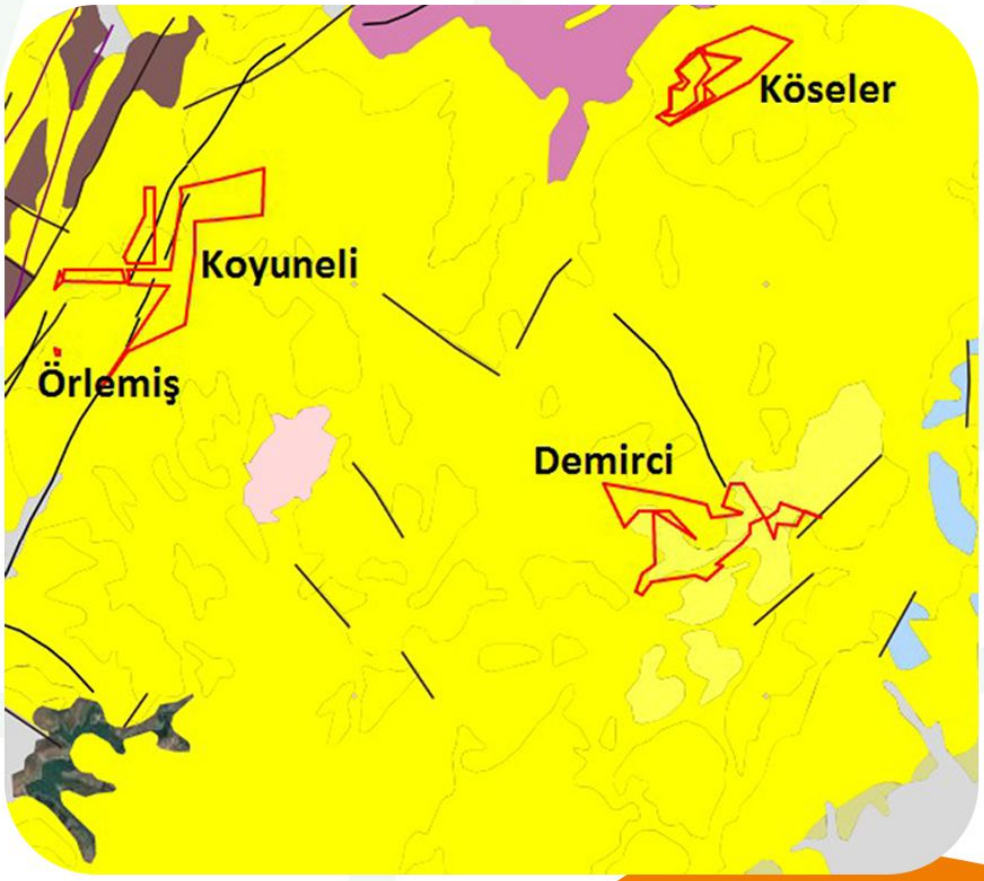
GENERAL GEOLOGY

The oldest rock unit that makes up the study area is the Permian old Chamoba Formation, whose position is not fully illuminated. From the Lower Triassic, whose position was determined as autochtonous, to the Quaternary, sedimentary, igneous and metamorphic rocks were distinguished. Some members of the Çamoba formation in the lower Triassic Halilağa group are followed as blocks. The Middle Triassic old Kapıkaya formation comes incompatible on the Kınık formation belonging to the Halilağa group. Kozak granodiorite cut off the Kınık formation. Upper Miocene-Pliocene old Yuntdağ volcanoes with Hearted dasit due to Kozak granodiorite in the region and the Ballıca formation, Soma formation and Rahmanlar agglomerate surfaces. Dededağ basalt is distinguished as the youngest volcanism product in the region (Figure 2)

The oldest units, which are determined as autoctons at the bottom, especially in the study area where the licenses are located, are rocks consisting of species that have undergone metamorphism in the green schist facie of various crumb rocks that partially preserve their primal form, and they were called Kınık formation by Akyürek and Soysal (1978). Spilit and diabases were observed in the Kınık formation, which is formed by the slight motamorphization of conglomerate, sandstone, siltstone, mudtafi, sandy limestone and limestone. In this lower Triassic old and very curved formation, the rock units consisting of Upper Permian old shalf sea sames and called "Çamoba formation" by Akyürek and Soysal (1983) are examined in the form of allocton blocks.

The Çamoba formation, which has a wider spread outside the examination area, consists of 5 members, and there are gray, and places-crystalized, abundant fossil limestone blocks related to the "Çaldağ limestone member" in the examination area.

The geological units, which are mostly encountered in the study area where the licenses are located, consists of Yuntdağı volcanoes, Ballıca formation, Soma formation, Rahmanlar agglomerate, Dededağ basalts and current Quaternary units. Therefore, geologically, these units will be emphasized (Figure 2).



1.1. Yuntda Volkanitleri (Tyu)

Volcanic rocks covering large areas are observed in the study area. These were called "Yuntdağ volcanoes" by Akyürek and Soysal (1983). Among their volcanoes, various types of lava, tuffs, sillified tuffs, agglomerates and lahars are distinguished. Lavas, black, gray, burgundy and yellow, very hard and abundantly cracked in places, and flow structures are followed. They are usually watched in the form of dom and volcano nails are found in some places. Generally, the doms in the Bergama graben are typical and the graben is broken down by these doms. Lavas are usually andesite-

They are in latite andesite-dasite and rhyodasltic composition. Tuffs are mostly dacitic, rhyodacitic and latite andesitic composition, gray, san, white in colors and are caolinated in places. Small pieces of biotite and glass in white dough stand out at first glance. Silicated tuffs are white, yellow, gray and red in colors, hard, mussel shell should be broken, with sharp edges and consist of silicle in places. In addition, there are economic perlite beds in some places with these silicated tuffs. Lahars are medium and large in size, angular, usually composed of andesite composition of gravel and blocks. They were formed by the floods of water-saturated material from the volcano chimneys and flowing towards the skirts and are usually tuffed matrix. The agglomerates are composed of rock fragments in the composition of andesite and dasite in the tuf matrix (Figure 3).

Yuntdag volcanoes are seen below, above, and sometimes in the form of lava flows and tufit levels, under the Soma formation consisting of terrestrial deposits. They also give gravel to the Ballıca formation, which also consists of sediments. For this reason, it is possible to suggest that Yuntdağ volcanoes began to be active before the precipitation of the Ballıca formation and continued with different phases during the precipitation of the Soma formation and continued their activity from the Middle Miocene to the Pliocene. The total thickness of Yuntdağ volcanos is about 550 m.

Ballıca Formation (Tb)

In the field of study, the first tertiary old sedimentary rock unit is the conglomerate and sandstones formed in the terrestrial environment (stream and alluvial range) and were called "Ballıca formation" by Akyürek and Soysal (1983). These conglomerates and sandstones, which include various types of gravels, should be scated from time to time and are spread more widely in the south of the examination (Figure 3). Pebbles usually belong to the older rock units found nearby, and most of them are limestone, volcanolite and granodiorite species. These gravels, which are poorly sized and slightly rounded, are in lengths ranging from block size to small pebbles. The cement is very thick, most of it in the form of clayey matrix, sometimes baking soda. Usually its stratification is uncertain and regulates, between massive and mediumassive stratification. Cross-layering, hollow and filling structures are monitored in sandstones. The formation comes incompatible on different types of rock units. The Soma formation located at the top is gradual with the sediments. No fossils were found in the Ballıca formation. However, it turns out that the Ballıca formation is of the Middle Upper Miocene age (possibly the Middle Miocene) as a result of the fact that the Middle Miocene old Yuntdağ volcanoes contain the pebbles, and the age of the fossil Soma formation at the higher is determined as the Middle Miocene-Pliocene. The formation is about 100 m thick.

Soma Formation (Ts)

In places on the Ballıca formation, there is a clay limestone, claystone, marl, tufit, sandstone and conglomerate succession or a sediment community consisting of rock species dominated by one or more of these rock species. These units, which are called "Soma formation" by Akyürek and Soysal (1983), are white, gray, yellow, beige colors and should be layered thin-medium (Figure 3). In general, these units, which are close to horizontal and horizontal, have been broken with faults in places. In some regions, terrestrial folds, antiquil and synclins are found due to compression. They contain coal and bituminous shale levels in places. It is about 400 m thick. The tufite levels in the soma formation were formed by the tuffs of the surrounding Yuntdağ volcanoes moving into lakes through streams and settling. The formation contains fossils of spore, pollen, ostracode, gastropod, fish leaf and vertebrate bone and was found to be Middle Miocene-Pliocene age. The habitats of the fossils obtained are fresh water. In fact, the bituminous shale and coal formations detected in this formation are also the lake environment and determines the swamp environment. Considering the variences to this conclusion, it has been determined that the Soma formation is the Middle Miocene-Sub-Pliocene and they are sediments formed in the lake environment.

Agglomerate of Rahmans (Tr)

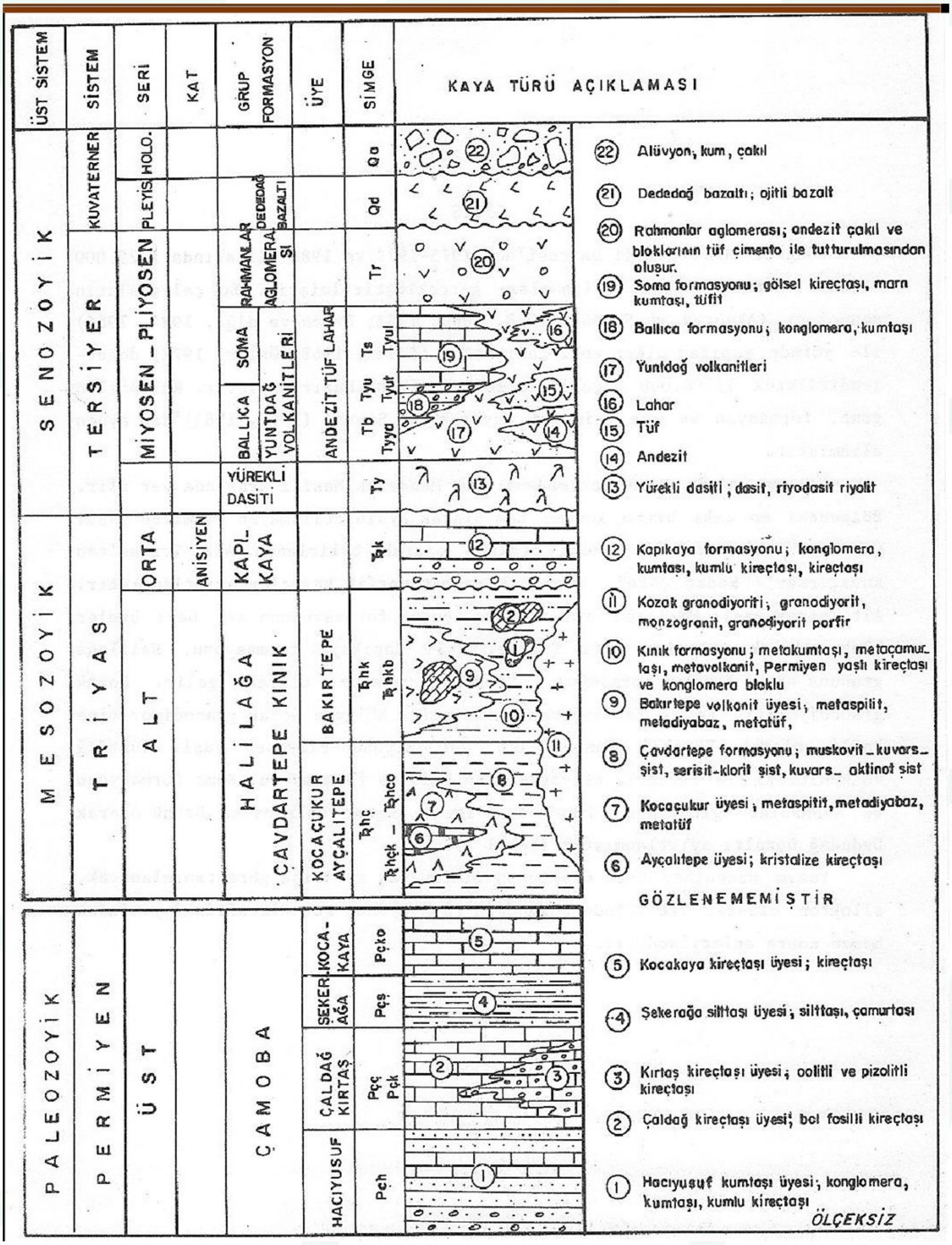
In the examination area, there are thick agglomerate deposits on the Soma formation and introde with it from time to time. Among these agglomerates, which are called "Rahman's agglomerate" by Akyürek and Soysal (1988), there are also tufite and siltstone levels (Figure 4). They usually consist of side-angular and rounded andesite and dasit gravel and blocks attached with a tuff flood matrix. These units, which can reach a thickness of about 400 m, were formed by the collapse and cementing of various sizes of volcanic material transported to the groundal lakes in the region after the period when Yuntdağ volcanoes were formed. They are upper Miocene-Lower Pliocene elderly.

Dededag Bazaltı (Td)

In the study area, basaltic lava flows were later identified as the last volcanic products. These basalts, which are called "Dededağ bazaltı" by Akyürek and Soysal (1983), are in black dark brown colors and are quite hard, with a gas gap and a hexagonal cooling surface from time to time. Along with these basaltic lava, lava breshic agglomerate and basaltic tuffs are also followed in some places. Lavas are a specimen, dense and with column joints. Tuffs should be succeed with basalt lava from time to time, sometimes they are covered with them. Cooking zones have been detected in the docanaks of the lava with surrounding rocks, and the limestone layers in the Dokanak have been erect and cooked in places. It was determined that the basalts cut all other rock units, and thus it was revealed that their age was Plio-Kuaternary. Eğrigöl domu is different from other dasitic doms in the graben, and it is the only dom that is basaltic and its slopes are less inclined than the others. These basaltic faces, which reach a thickness of about 100 m, are arranged along the tectonic lines in the examination area. Although they are in the form of monople volcano cones from time to time, they are also watched in the form of days.

Alluvial (Qa)

Quaternary aged alluvials are seen as the youngest unit in the study area.



3 TEKTONISM

In the Paleotectonic period, to the north of Neotetis in Western-Central Anatolia, the Pontids
Sakarya Continent in Upper Kampaniyen-Lower Maastirithtiyen regarding diving under the
Anatolid-Torid block collided along the İzmir-Ankara sutur zone during the Upper Paleocene period (Okay and Featherless, 1999; Keskin, 2018). After the tectonic regime
The Neotectonic phase in the region where it is located started with the collision of the Anatolian continent and the Arab continent along the Bitlis-Zagros suture zone (Şengör and Yılmaz, 1981). In the neotectonic period, the Anatolian Plate began to be pushed westward along the KAF and DAF with the compression of the African-Arab plates from the north and Eurasia from the south. The transformation of the KAF into the GB-KD-directed Aegean Shearing Zone just west of the Saros Gulf has greatly hindered the movement of Anatolia to the west. As a result of this, the eastwest compression regime started to develop in Western Anatolia, and with the effect of compression, the period of the expanded tectonic regime developed with the K-G directional stresses in the region. As a result of this expansion regime, a large number of graben structures extending in the direction of approximately D-B began to develop in the GB Turkey (Şengör and Yılmaz, 1981). In the Western Anatolia region, the grabens extending in the north-south direction are generally the Lower Miocene older (Nazilli, Bergama, Gördes, Demirci, Uşak, Evrenli grabenleri); these are cut by younger grabens (Gediz, Küçük and Büyük Menderes Grabens) of the middle-Uper Miocene age with eastwest stretching. The edge faults of the east-west grabens are alive today, and they have the listrical fault geometry, whose slopes decreasing to the deep (Hetzel et al., 1995., Bozkurt, 2001).

There are many broken systems from north to south and from east to west are available in the study area. In previous studies, these fractures were processed on the map and these fracture systems were defined as direction pulsed, slope pulsed, verev faults. There are also undefined broken systems on the land (Figure 6).

SOME PERLITE FORMATIONS AND PETROLOGICAL LINKS OF VOLCANICS IN WESTERN ANATOLIA

The coasts of Western Anatolia, starting from the south, from the tip of the Bodrum peninsula, and towards the north, they were covered with volcanics, increasing in thickness. Various pyroclastics and lava in andesite, quartz-latite, dasite, rhyolite and basalt chemistry have formed volcanic complexes in certain segments. Both the relations with terrestrial sedimentary rocks and certain cyclic characteristics were able to partially clarify the petrochemical development of these stacks (SAVAŞÇIN, 1972). In addition to geological findings, the radiometric values of the volcanoes belonging to the Aegean coast and nearby islands such as Lesbos (BORST, FERRARA, INNOCENTI, MAZZUOLI, 1972). It proves that their age is between 21.5 million years and 12.5 million years. In the Görece region, where the volcanic activities series of volcanic activities, which last from the Middle Miocene to the beginning of the Pliocene, various petrochemical products are exhibited, in the Aegean coast and inner regions, especially in the Görece region, which determines the complex between Manisa - Foça as the ideal cross-section, the stocks of Riyodasit and Dasit can be followed to the south to the Yamanlar.

To the north, Bergama continues to NNE, extends in the direction of Ivrindi. Volcanites included in this group have terrestrial Agglomerate levels. It can be stated that their appearance is formed by primary block currents. Tuff performs the duty of cement many times. Perlite formations in and around Kocaköy are also completely in the equivalent chemical composition of rhyolite and alkaliriolite rocks. However, explained in the previous section, which also reflects the situation in the Kocaköy region, there are Dasit and latitandesitic base volcanos ryolytic tufffs and aglomerates in the Kınık-covered perpendicular section, and at the top, Andesites and Ryolites cut each other. This image is viewed very often in perlite beds and does not comply with normal stacking in areas where perlite is not formed. For this reason, the side-by-side presence of perlite deposits and rhyolytic lava and breches in the geological environment proves a genetic relationship. To think about the terrestrial, young andesite lava as a volcanic cyclicality specific to the perlite formation areas, cutting the acidic volcanic and its derivatives in question, or sometimes their spread in shapes that cover them, appears to be the closest possibility for now.

FIELD STUDIES

Studies were carried out between 1-6 September on a total of 4 licenses in Bergama District of İzmir province, which belongs to Bergama Madencilik AŞ. Separate studies were carried out for each license area. In these areas, the determination of oreization zones, faults, tectonic dokanaks, sidekayaç relations and other geological elements were determined and interpreted by determining them on 1/25000 topography and geology maps.
In addition, geological and drilling works were carried out on licensed sites before. These data were also examined and interpretations were made about the formations, quality and operability of perlite ore. In addition, interpretations have been made about drilling at points deemed appropriate or visible.

Especially Perlite petrographic is equivalent to volcanic glassy rocks, which have chemical composition, which can vary from rhyolite to dacite, contain 2-5% volatile components and show typical onion, shell, texture. In commercial terms, it is known that perlite is all kinds of volcanic glass, which expands 10-30 times the initial volume and becomes a very light aggregate when it is heated between 850 0C and 1100 0C. The high amount of water in the perlite causes it to expand as much as possible.

.It happens. The high expansion of the perlite also increases its quality and usage area. There will be no emphasis on much detail regarding this subject.

There are many broken systems from north to south and from east to west are available in the study area. These broken systems have been defined as direction pulsed, inclined, verev faults (Figure 2). Young and active faults directly affected the existence and quality of perlite ores in the areas where the license limits are located. This has been revealed in the field studies.

In addition, in line with the request from Bergama Madencilik AŞ company, the possible reserves of perlite ore formations within or to be found within the license limits have been calculated. Depending on these calculations, visible reserve calculations will be removed in line with the data obtained as a result of the core drillings to be made after the drilling points to be given.

License Field with Access Number 3068687 Knitted

It is located in the GB part of the Bozköy factory belonging to Bergama Madencilik AŞ. It has an area of 3.04 hectares. Almost all of the perlite ore processed in the factory in Bozköy is covered from this quarry. There are Yuntdağ volcanoes in the field. There are rhyolites in the upper parts, and perlite ore formations are observed under the rhyolites (Figure 7). The color of the perlites, which is generally seen in this license area, was seen in light gray, gray, and white in the form of pink bands. There is a mirror that is worked about 15 m high in the quarry. It has been declared by the company official that cored drilling was made right from the bottom of this mirror. Unfortunately, since this drilling could not be reached, it was reported that the drillings were carried out a maximum of 30 m and the perlite was cut for this 30 m in line with the information given by the company official. In line with this information, ore thicknesses in the region were thought to be 45 m on average. It is predicted that deeper drillings can be made and the thickness of the perlite ore can be completely removed and used in reserve calculations, and better interpretations can be made about the visible reserve.

In this area, no possible reserve work has been carried out because the company Bergama Madencilik AŞ has not been requested. The license area has been studied in terms of interpretation of ore thickness and ore quality.

It is located in the southern part of the Bozköy perlite processing factory belonging to Bergama Madencilik AŞ. It covers an area of 1272.72 hectares. Some of the perlite ores, which are produced from this field in the Bozköy factory, are processed. There are two KD/GB directional pulsed faults passing through the license area, and this fault directly affected the oreization formed within the area (Figure 9). Due to these faults, it has been observed that the ore direction forms in the form of doms in a zone in the direction of KD/GB.

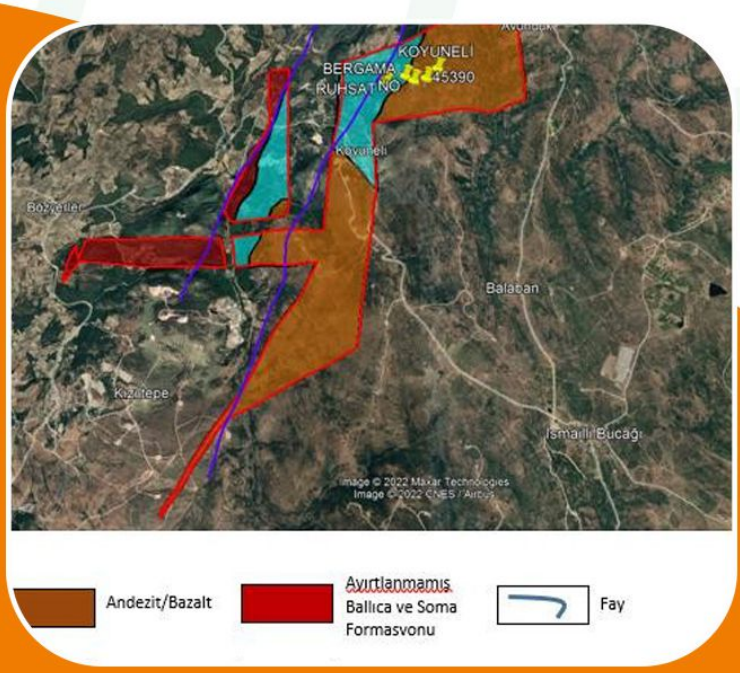
In 60% of the license area, at the top and in the eastern parts of the license area, andesite/ basalt under them, perlite ore formations and clay limestone, marl, sandstone, milestone, tuff and tufit are observed to be transitional to them (Figure 11).

In this license area, the perlite ores obtained from the doms in the parts far from faults did not lose their body water because they were not exposed to high temperature and pressure caused by faults. Therefore, since they have high body waters, they have very good expansion properties. This shows that it is more economical in terms of operating perlite ores in this license area. The color of the perlites, which is generally seen in this license area, was seen in light gray, gray, and white in the form of pink bands.

The tuffs seen in the study area are mostly dacitic, rhiodacitic and latite andesitic composition, the majority of which are white in colors and are caolarized in places. Small biotite and pieces of glass in white dough stand out at first glance (Figure 12). It is necessary to take systematic samples from this type of tuffs seen in the field and their analysis should be done. The coordinate of this formation is Y:513655, X:4313581. However, it would be more appropriate to sample by taking the coordinates for sampling. According to the results of this analysis, it is envisaged to be reinterpreted

The areas covered by the existing and existing perlite doms that give outcokes in the license area were followed and the necessary calculations were made. As a result of this calculation, an area of approximately 276,825 m2 was calculated. In addition, the highest thickness measured in the current studied furnace was calculated as 10 m (Figure 12). Again, it has been reported by the irma authority that drilling works were carried out at depths of 30 m within this license area. It was informed that perlite ore is usually cut in drillings at these depths of 30 m. In the light of this information, the possible reserve calculation was made by considering that the perlite ore thickness will be 40 m on average.

As a result of these calculations, approximately 11,073,000 m3 of possible perlite ore reserves were calculated within the license area. It is recommended that with these deep drillings, new data on the quality and thickness of perlite ore can be calculated and the visible reserve can be calculated.



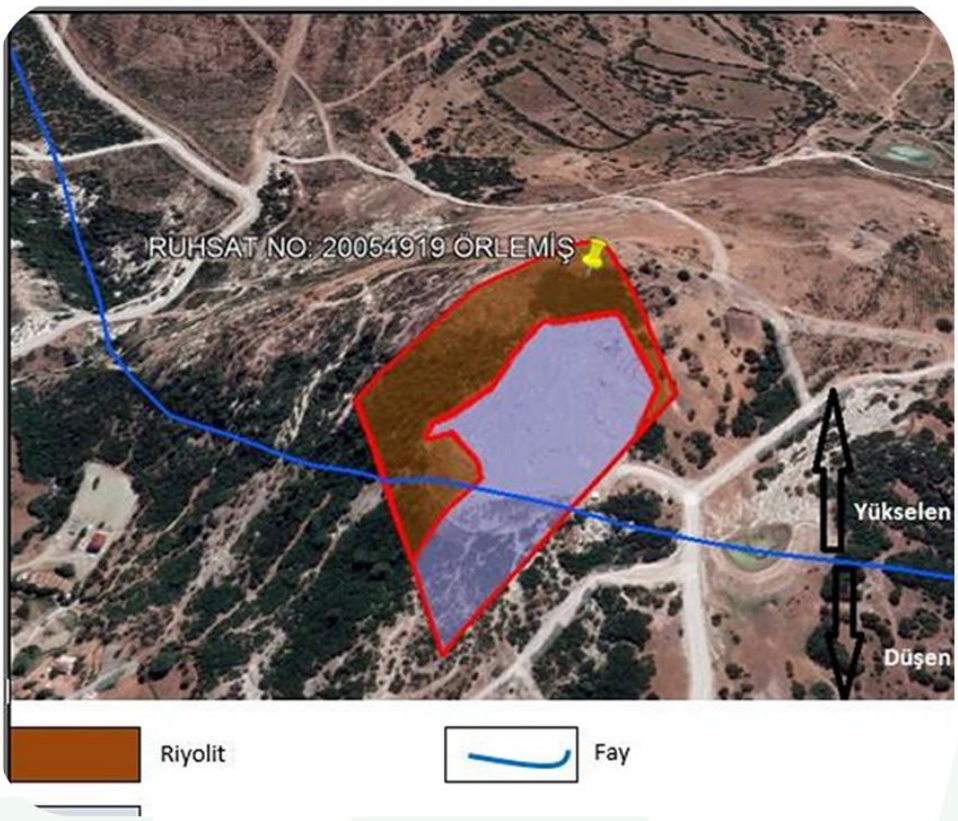


Figure 10 1/25000 Scale Topography Map of the Koyuneli Field

Figure 11 Tuf Formations Observed in the Licensed Field of Koyuneli

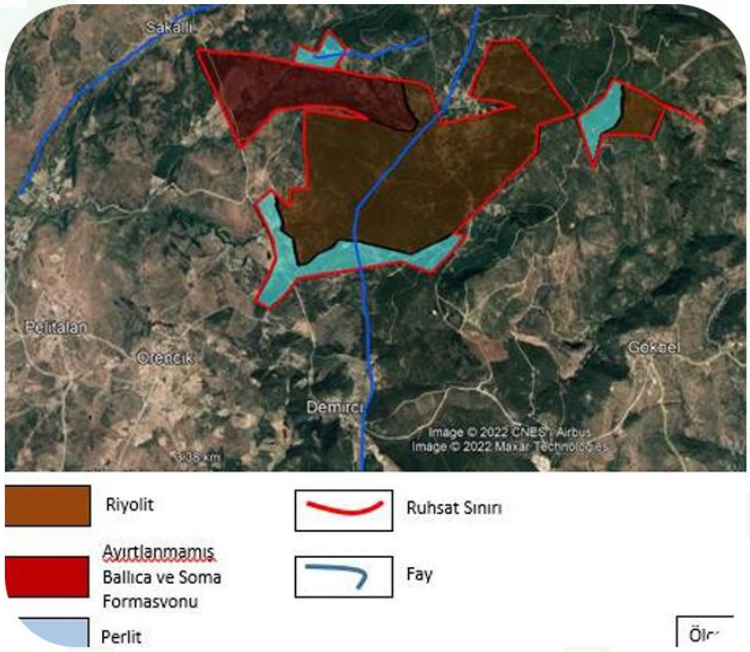
Demirci License Area Numbered 3362843

It is a licensed area located within the borders of Manisa province in the GD part of the Bozköy factory belonging to Bergama Madencilik AŞ. It has an area of 1940.53 hectares.
In 70% of the license area, there are rhyolites at the top. Under the rhyolites, perlite ore formations and clay limestone, marl, sandstone, milstone, tuff and tufit are observed under the rhyolites (Figure 13). Two different perlite ores were encountered in this license area. The first is in the region given as Lok 1, and its color is generally observed in the form of white light gray. Secondly, perlite ores in light gray, gray and black colors were found in other locations. The perlite formations in the doms here are rhyolytic structures and form a transitional structure with the upper rhyolites. Despite the spread of rhyolites in a wide area within the license area, perlite domu crops have been found in different locations. The locations of these outcrops are given in the table below.

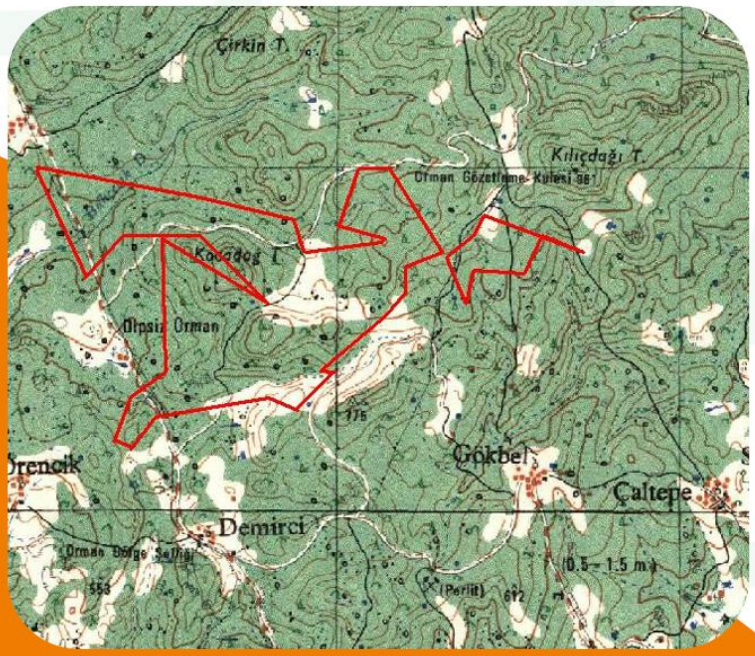
Koyuneli Ocağından Görünüm

The perlite ores in the license area were directly affected by the effect of the faults affecting the region. Press and temperature differentiations caused by faults caused the deformation of many perlite ores in the license area (Figure 15). Perlite ores, which were exposed to pressure and temperature changes, both lost the body's water and suffered physical deformations. Therefore, the enterprises opened on some perlite formations in this region were abandoned due to poor quality perlite. Apart from this, samples should be systematically taken from the perlite formations in the regions where the locations are given, and after drilling according to the results of the samples, interpretations should be drawn about the visible reserve of the license area. At this stage, no reserve work was carried out on the field. Drilling at relevant points is recommended.

Nokta Adı	Y	X
Lok 1	532001	4302211
Lok 2	534443	4301601
Lok 3	533149	4301826
Lok 4	537125	4304070



Demirci Sahasına Ait Genelleştirilmiş Jeoloji Haritası



BTR MADEN

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Köseler License Area Numbered 3124601

It is located almost to the east of the Bozköy perlite factory belonging to Bergama Madencilik AŞ. It has an area of 749.56 hectares.Almost all of the field are silicated tuffs from Yuntdağ volcanoes and perlite formations and clay limestone, marl, sandstone, milstone, tuff and tufit, which are laterally transitioned with them, are observed (Figure 16). As in other fields, the faults that were effective in this field were effective in the formation of ore. KD/GB extension faults also caused the formation of a perlite ore zone with KD/GB extension. In these formations, he gave a perlite outcraw as domsal structures, especially in two different regions. Rhyolites are observed in the upper parts of the license area. Just below the rhyolites, the formations of perlite are transitional to each other. Again, the perlite formations seen here are in the form of rhyolytic perlite formations. In the examinations carried out in The perlite doms in the parts far from the faults in the field, the rate of water in the perlite may be high, it is thought that the quality of the perlite may be good.
The color of the perlite, which gives a soutra close to the Köseler village, is gray blackish, but there are pink flowing bands near the points where it switches with rhyolite (Figure 18). In the examinations made in the outclose near the village of Mustaklar, perlites are also generally observed in the form of black, pink-black-gray bands.

In the examinations made in this license area, according to the geological and drilling data information made before and based on the height in the quarry seen, the average thickness of 45 m perlite ore thickness was calculated. As a result of the superficial examinations carried out in two regions, the total calculated area of the areas where the perlite ore spreads is 646,250 m2. When we multiply this by the apparent thickness, a possible reserve of 29,081,250 m3 of perlite ore emerges. It has been reported by the company official that the drillings are 30 m. With the deep drillings to be carried out at the points detected in this region, the visible reserve of this field will be removed by finding the quality of the perlite and the thickness of the cut. It is known that the possible reserve that comes out with deep drilling to be done may increase even more.

Figure 15 Abandoned Over-Deformed Perlite Furnace Appearance in Blacksmith License Area

5. RESULTS AND SUGGESTIONS

Geological elements about perlite ore formations in 4 licensed areas belonging to Bergama Madencilik Aş were examined and comments were made about perlite formations, quality and possible reserves.
Geological elements were distinguished, especially Yuntdağ volcanoes and Ballıca, Soma formations and Rahmanlı agglomerates, which show transitional properties with them, were examined. Perlite formations that develop with the silication of tuffs and tufites in Yuntdağ volcanoes have been revealed. As a result of pressure and temperature changes due to the young and dynamic faults that directly affect these perlite formations, the changes in the quality and physical structures of the perlite ore were examined.

Perlite must have water in the range of 2-5%. The higher this water percentage, the better the expansion in the perlite, so it revealed that the quality and usage area of perlite increase. It has been observed that the perlite formations, especially in the license areas, are affected by faults and the quality of the perlite decreases in some regions due to the loss of body water for this reason.
In the examinations made in the Örmiş and Koyuneli fields, it is thought that the perlite ores in these areas are more economical in terms of operation and quality. Following this, in the examinations made on the Köseler perlite, it is considered that the production of a quality perlite will be ensured in the productions to be made, provided that it is away from the points where it passes with rhyolites. In the Demirci licensed area, comments are made about whether this licensed field can be evaluated after the systematic sampling to be made at the specified locations and the drilling to be done as a result of the analysis of the samples.

Reserve studies were carried out in Koyuneli and Köseler licensed areas. After the reserve studies carried out here, the total possible reserve was calculated as 40,154,250 m3. Visible reserves will be revealed in line with the data to be obtained after deep drillings to be made at the determined or new drilling points to be determined. Deep drilling is recommended as the current visible reserve will emerge in this way.

Since no drilling data in the Demirci licensed area and no information about the quality of the perlite ore in the existing and located locations could not be reached, the reserve calculation was made.

Samples to be taken from fresh surfaces, especially on the white tuffs obtained in the licensed field of Koyuneli, and these samples should be re-interpreted after analysis. It is obvious that the extremely modern and capacity perlite processing facility in Bozköy, which belongs to Bergama Madencilik AŞ, may become extremely active with these existing licenses.