

Gypsum in Yemen

Gypsum is found in abundance in Yemen. A large part of the mined gypsum is used as retardant in cement. Gypsum is also mined from a series of small quarries near Sana'a for local production of building plaster.

Geological setting

Gypsum occurs in the Upper Jurassic in the Shabwah governorate and in the Upper Jurassic and the Lower Cretaceous north-east of Sana'a as well as in Marib.

Huge deposits of gypsum of Lower Eocene age as well as Oligocene age are found in Al-Mahrah, Abyan, Shabwah, and Hadramawt. In Middle-upper Miocene deposits gypsum alternate with salt and clay beds.

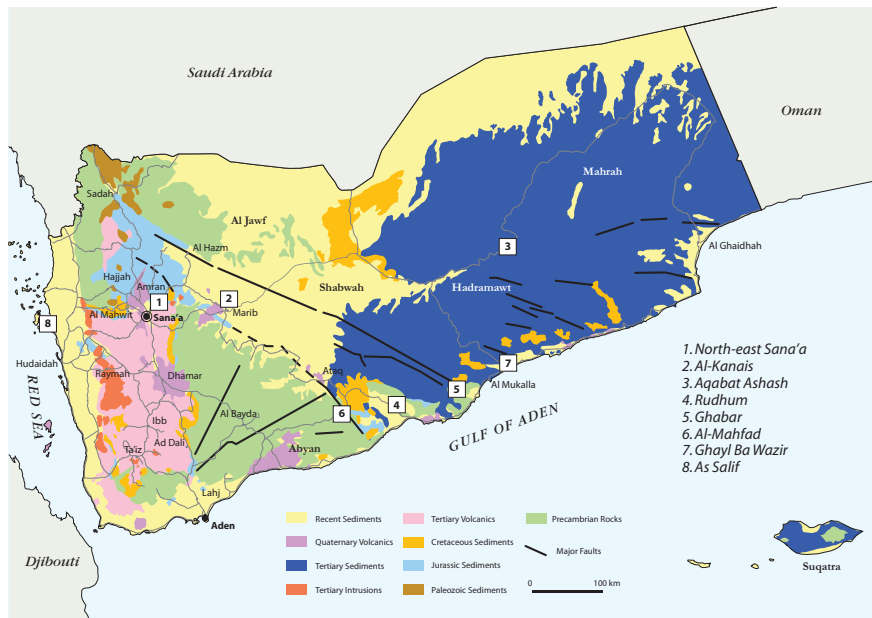
Gypsum in the Jurassic

The most important of the Jurassic gypsum occurrences are located to the north-east of Sana'a as well as north-east of Marib.

The Sana'a area

North-east of Sana'a there are Upper Jurassic deposits in evaporate facies (green clays, gypsum and gypsum layer, 8 m thick), with anhydrite interlayerings. The gypsum layer has been partly exploited by underground mining. Its thickness varies from 8 to 10 m (Al-Gheras and Al Khulakah) and 2.5 m (Sheara'). The total estimated reserves of gypsum deposits in Sana'a are about 1.4 million tons.

The chemical composition of the gypsum deposits in Sana'a varies from 51.40 to 55.45% SO_3 , 37.20 to 39.80% CaO and 2.13 to 7.46% H_2O . The gypsum content ranges from 76.67 to 90.77% and anhydrite from 2.43 to 19.78%. The bulk density ranges from 34 to 49 gm/cm³, and the whiteness ranges from 84.5 to 92.6%.



Geological sketch map of Yemen with the most promising gypsum occurrences.

The Al-Kanais area

About 40 km north of Marib, over an area exceeding 1 km², white spongy gypsum occurrences have been identified. The chemical composition is 28.28% CaO and 39.52% SO_3 , with 84.9% gypsum content.

Gypsum in the Lower Eocene

Huge Lower Eocene gypsum deposits are found in Hadramawt, Abyan, Shabwah and Al-Mahrah governorates.

The Aqabat Ashash area

The gypsum deposits are situated about 140 km north-east of Sayun city and



Mining for gypsum near Sana'a.

about 450 km north-east of Al Mukalla city. Over an area exceeding 500 km², white-beige gypsum deposits have been identified. The average thickness is 90 m, and the total reserves of the gypsum deposit at Aqabat Ashash are about 4.5 billion m³. The chemical composition is: 40-45% SO₃, 28-32% CaO and 2.13-7.46% H₂O, with the gypsum content ranging from 88 to 98%.

The Rudhum area

The gypsum deposit is located about 5 km north of Rudhum town in Shabwah, covering an area of several kilometres. It is characterised by sheet, lenticular bodies with fibrous texture varying from white over grey to colourless. The thickness of the gypsum ranges from 40 to 100 m. The gypsum in Rudhum occurs as massive gypsum, as crystals and as transparent cleavable masses. It also occurs as silky and fibrous gypsum, in which case it is commonly called satin spar. A very fine-grained white or lightly-tinted variety of gypsum (alabast), is also found in Rudhum. The gypsum raw material contains 62-97% gypsum with 1.9-26% anhydrite. The estimated reserves are about 11 million tons.

The Ghabar area

The gypsum and anhydrite occurrence is located about 72 km south-west of Al Mukalla city. The occurrence consists of white-grey gypsum and anhydrite. Covering large areas, the exposure shows on effective thickness of about 40 m. The raw material contains 76.3% CaSO₄. The quantity of raw material is estimated to be about 40 million m³.

Gypsum in the Oligocene

The Oligocene gypsum deposits are found in Abyan and Hadramawt governorates.

Al-Mahfad area

Gypsum deposits are located about 5 km south-east of the town Al-Mahfad in

Abyan. An up 77 m thick band of gypsum and anhydrite, comprising three productive beds whose thicknesses vary from 5.4 to 12 m, was revealed in the area of the deposit. The upper bed, composed essentially of gypsum, has been explored. The gypsum quality is high, which makes it suitable for production of binding material in pharmaceuticals and as a flux in metallurgy. The estimated reserves are about 7.7 million tons.

The Ghayl Ba Wazir area

Gypsum deposits are located north-east of the city Al Mukallah. The gypsum is accumulated within flat-lying sedimentary series over 50 km. A 1.6-26.3 m thick band of gypsum and anhydrite, comprising productive beds, whose thickness varies from 4.6 to 17 m, was revealed in the area of the deposit. The content of gypsum is 84-98%. The estimated reserves are about 7.6 million tons.

Gypsum in the Miocene

The Miocene gypsum deposits are found along the Red Sea coast.

The As Salif area

The gypsum-containing rock is situated about 75 km north-west of Al-Hudaidah. The gypsum layers occur together with clays and gypsum-bearing sandy marls. This complex is closely related to the underlying salt deposit. In the highest areas (maximum 35 m) the gypsum complex occurs at the surface, while eastwards it sinks below the Red Sea level.

The chemical composition is 32.80-36.40% CaO and 46.39-52.52% SO₃, and the insoluble amount varies from 0.30% to 1.08%. The area has a width of about 700 m in an east-west direction and a length of about 1300 m, with a thickness of 35 m. The deposit is estimated to contain approximately 14 million tons.



Ministry of Oil & Minerals
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