وزارة الطاقة والثروة المعدنية

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MINISTRY OF ENERGY AND MINERAL RESOURCES
Mineral Status and Future Opportunity

DOLOMITE

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Dolomite

1. Introduction

Dolomite ($CaCO_3MgCO_3$) is a sedimentary rock occurs as a sedimentary deposit similar in nature to limestone. Most dolomite deposits are as a result of replacement of Mg instead of Ca during the recrystallization of limestone (Dolomitzation), while some dolomite precipitates directly from seawater. The dolomite rocks contain more than 50% of both calcite and dolomite minerals in which dolomite is more abundant than calcite.

Theoretically, pure dolomite contains:

CaO: 30.4%
MgO: 21.8%
CO_2: 47.8%

Impurities in dolomite include: Clay minerals and chert.

2. Uses

The uses of dolomite are classified as follows:

- Direct applications of dolomite (Agriculture, Cement mortar, and treatment of cracks).
- Uses of selectively calcined dolomite (produce, Magnesium oxychloride cement, Magnesium oxysulphate cement, Inorganic magnesia foams, and silicate bricks)
- Chemicals from dolomite (Magnesium oxide, magnesium hydrooxide, magnesium carbonate).

3. Location

Dolomite in Jordan found in many different areas these are: Figure (1)

3.1. The Area Between Wadi Isal and Wadi Ahemir Iasal

It is located about 30km west of Karak and is defined by the following coordinates: (Palestine Belt)

E: 201400 – 202300
N: 1067650 – 1068550

3.2. Ghour Al-Haditheh Area

It is located about 25km west of Karak, 0.5km east of Al-Haditheh and is defined by the following coordinates: (Palestine Belt):

E:- 201.200 – 202.500
N:- 1077.500 – 1079.000

3.3. Other Locations

- **Ein Lahtha area**: is located about 17km south of Tafila.
- **Al-Ena area**: is located about 28km north east of Tafila.
- **Ras En Naqab area**: is located about 50km south of Maan.

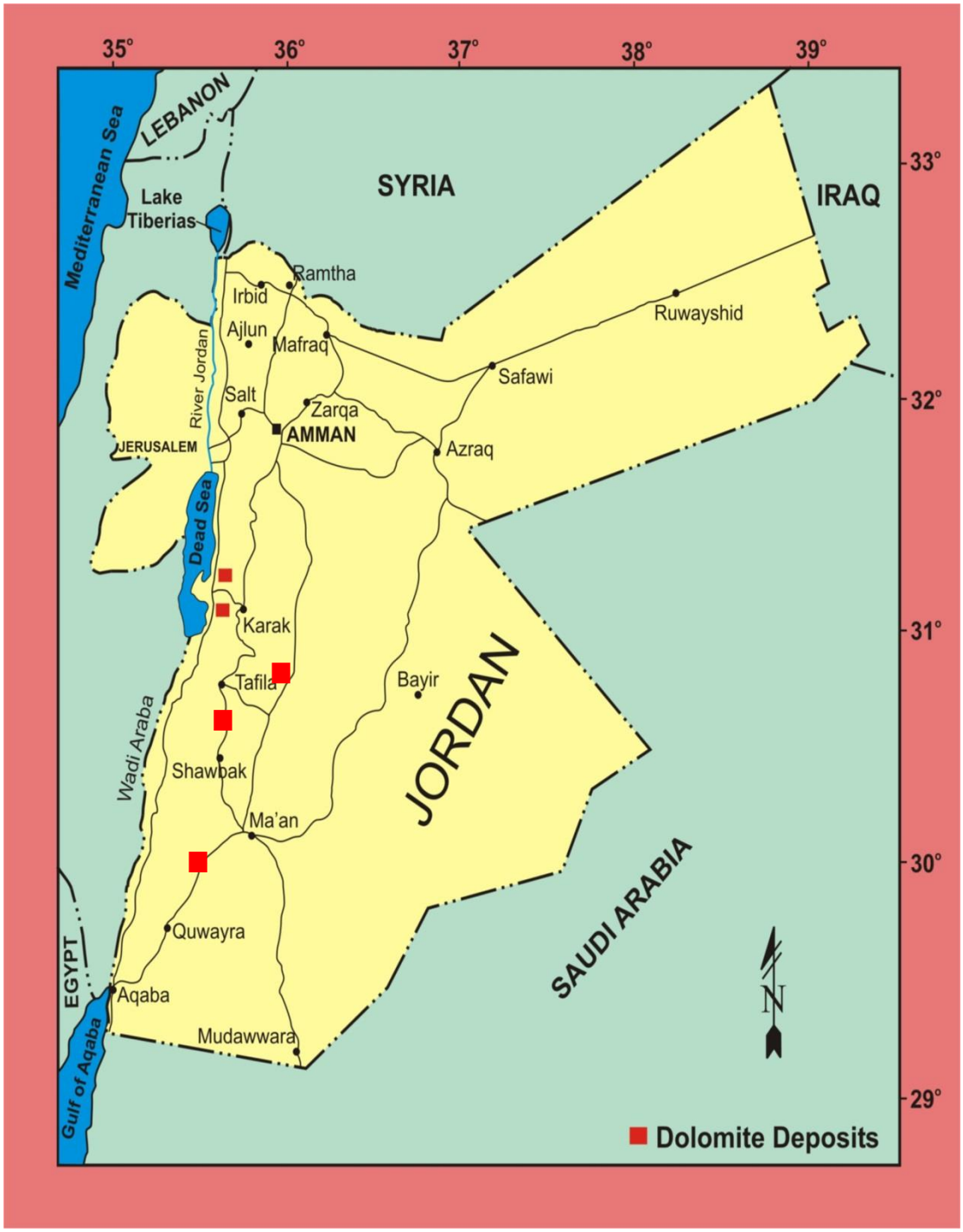

Figure (1): Location map of Dolomite deposits in Jordan.

4. Geological Setting

Dolomite found in rocks of all ages, and is generally associated with limestone. In general, dolomite can be found throughout Jordan in the Burj Dolomite – Shale Formation of Cambrian age and in Naur, Hummar and Wadi Es-sir formations. Dolomite deposits which occur in Wadi Isal and Ghour Al-Haditheh areas belongs to Wadi Es-Sir Formation (Turonian) (Figures 2 &3).

5. Reserve

Table (1): Reserves of Dolomite.

Area	Reserve (Mt)
The area between Wadi Isal and Ahemir Isal	62
Al-Haditheh	20
Ein Lahtha	Not determined
Al-Ena	Not determined
Ras En Naqab	Not determined

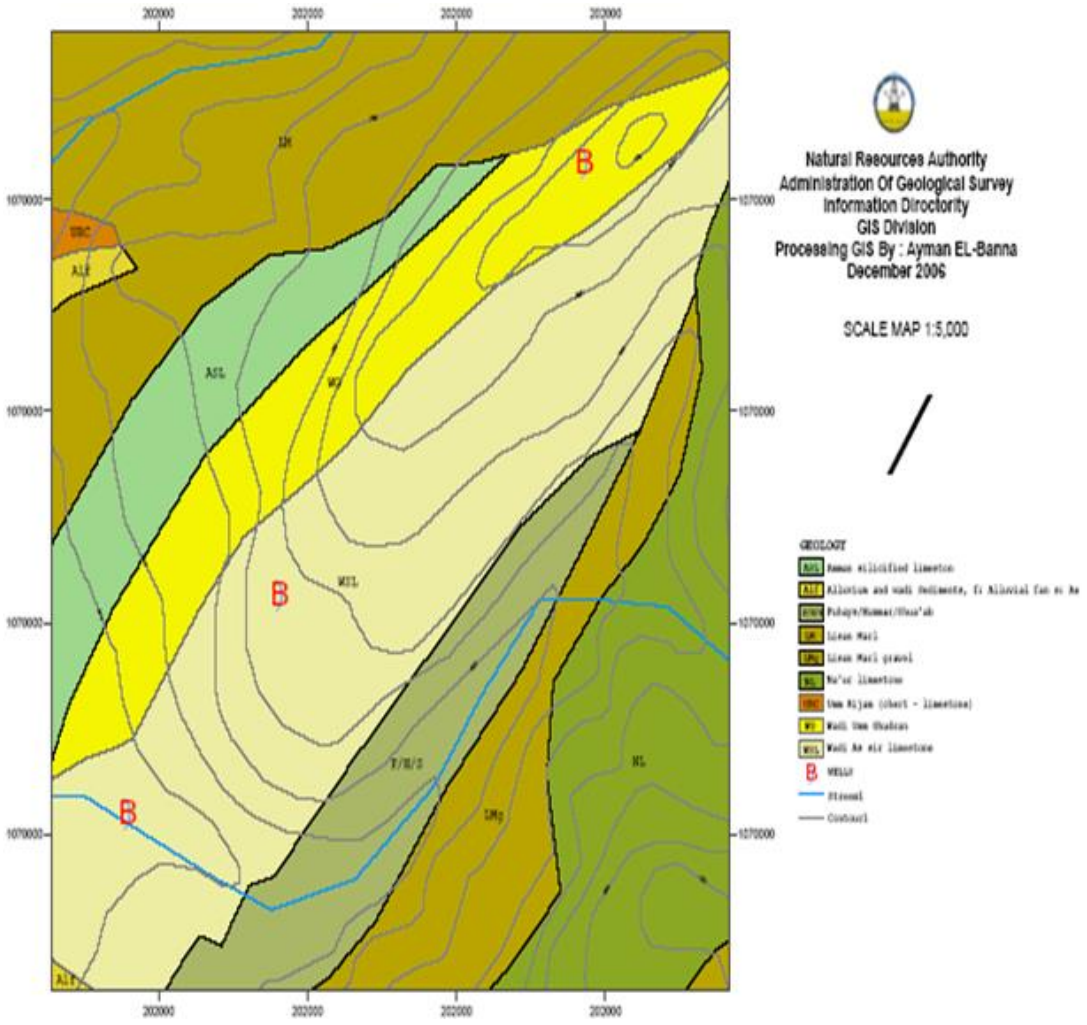

Figure (2): Geological map of the area between Wadi Musa and Wadi Ahemir Isal.

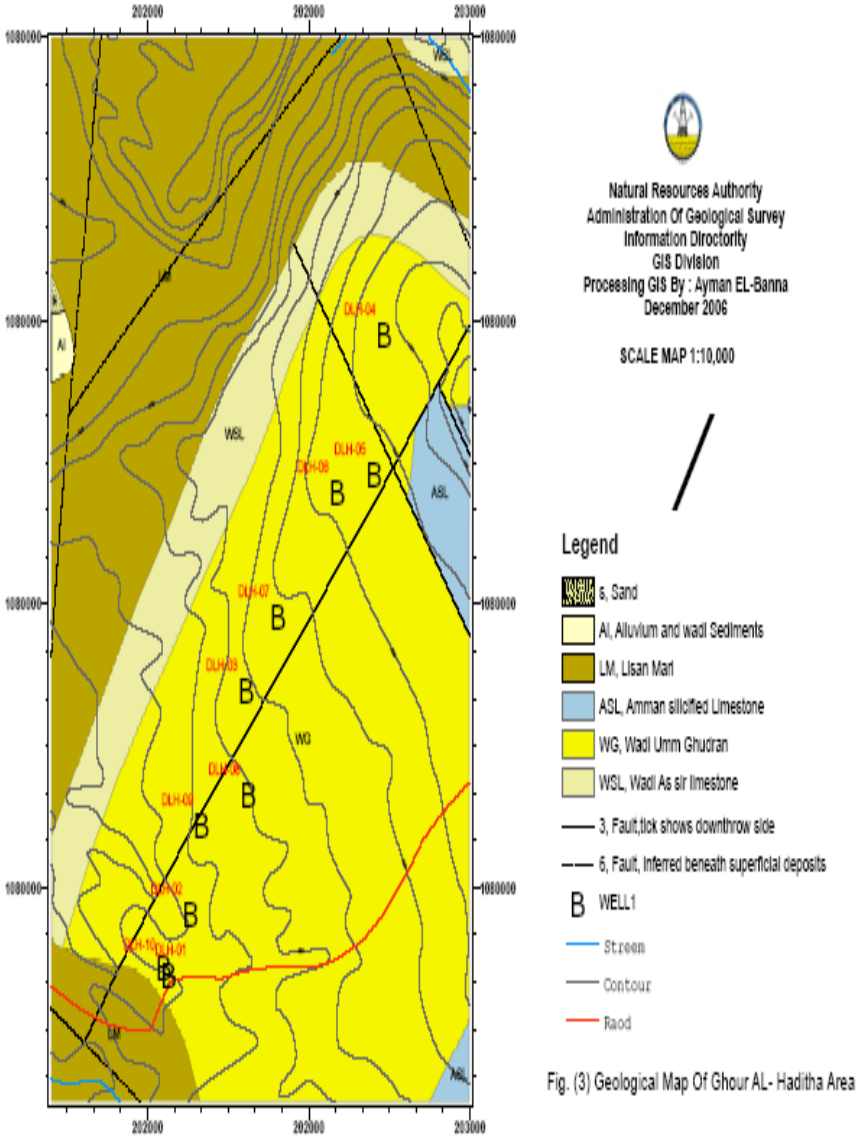

Fig. (3) Geological Map Of Ghour AL- Haditha Area

Figure (3): Geological map of Ghour Al- Haditha area.

6. Mineral Properties

6.1. Chemical Properties

Table (2): Chemical properties of Dolomite at the area between Wadi Isal and W di Ahemir Isal.

MgO %	1.77 – 18.98%
SiO_2 %	0.95 – 6.44%
CaO %	31.13 – 46.7%
Fe_2O_3 %	0.12 – 1.36%

Table (3): Chemical properties of Dolomite at Ghour Al Haditheh area.

MgO %	1.74 – 20.2%
SiO_2 %	0.45 – 24.2%
CaO %	21.55 – 50.9%
Fe_2O_3 %	0.1 – 3.57%

Table (4): Chemical properties of Dolomite at Ein Lahtha area.

MgO %	16.7%
CaO %	35.9%

Table (5): Chemical properties of Dolomite at Al Aina area.

MgO %	14.42 – 18.72%
CaO %	33.86 – 35.9%
Fe_2O_3 %	0.81 – 1.6%

Table (6): Chemical properties of Dolomite at Ras En Naqab area.

MgO %	15.93 – 18.95%
SiO2 %	31.4 – 34.9%
CaO %	2.38 – 2.82%
Fe_2O_3 %	0.53 – 0.96%

6.2. Mineralogical Properties

6.2.1. Ghour Al Haditheh Area

Dolomite and calcite is the major constituent with minor amount of Gypsum, Quartz and Kaolinite.

7. Background

- In 1988, NRA studied the dolomite deposits in the area between Wadi Isal and Wadi Ahemir Isal, The study includes drilling of three inclined borehole, sampling, and reserve estimation.

- In 1991, NRA studied the dolomite deposits in the Al-Haditheh area. The study includes drilling of ten boreholes, sampling and reserve estimation.

8. Investment Opportunities

Currently, there is no exploitation of dolomite, but the mineral is open for investment. Mining and exploration companies are invited for investment and evaluation of the reserves for:

- **Glass Industry:** as the dolomite one of the main raw material and form 5 – 10% of glass industry.

- **Ceramic industry**: Dolomite can be used in high thermal resistance ceramic, this is an investment opportunity for uses the dolomite in this new industry in Jordan.

9. References

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