

Mineral Exploration & Mining

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Overview

Mineral Economics : Introduction

Introduction to Remote Sensing

Legal Framework in Indian Mining Industry

Stages of Exploration

Geochemical and Geophysical Prospecting

Drilling

Sampling

Ore reserve estimation

Classification of ore reserve

Ore Dressing

Introduction to Mining

Mineral Economics

Limiting factors in mining

- Minerals are immobile
- They are non renewable
- Agencies should find new deposits
- Production costs may increase
- Estimates of ore supply may be incorrect
- Minerals from foreign and small producers result in over supply
- Reservoir of scraps depress market
- Prices of certain minerals are fixed by government.
- Mineral substitutes

“A country’s economic and social development is reflected by the discovery, exploration and exhaustion of its mineral resources.”

Mineral Economics

Mineral deposit worth may become more if it is

1. Large
2. Easily accessible
3. In great demand
4. Favorably located
5. Cheaply mineable
6. Military importance

Tenore

Grade

MINISTRY OF MINES
(INDIAN BUREAU OF MINES)

NOTIFICATION

Nagpur, the 25th April, 2018

No. C-284/3/CMG/2017.—1. Indian Bureau of Mines (herein after referred to as IBM) is vested with the responsibility to review the threshold value of minerals periodically under sub rule 7 of rule 12 of Mineral Conservation and Development Rules, 2017.

6. THRESHOLD VALUE OF MINERALS

S.No.	MINERAL	THRESHOLD VALUE
1	Apatite & Rock Phosphate	P_2O_5 -5%(Min.)
2	Bauxite	(i) For Aluminous laterite: Al_2O_3 - 20% (Min.) (ii) For Bauxite: Al_2O_3 - 30% (Min.) and SiO_2 (Total)-7% (Max.)
3	Chromite	Cr_2O_3 -10%(Min.)
4	Fluorite	CaF_2 -5%(Min.)
5	Graphite	(i) For flaky variety- 2% Fixed Carbon(F.C) (Min.) (ii) For amorphous variety - 10% Fixed Carbon(F.C)(Min.)
6	Iron Ore	(i) [#] Hematitic Ore - 45% Fe(Min.) (ii) [^] Hematitic Siliceous Ore - 35% Fe(Min.) (iii) [*] Magnetite Ore-15% Fe (Min.)
7	Kyanite & Sillimanite	35% (Min) Kyanite/*Sillimanite content * Not applicable to sillimanite of beachsand
8	Limestone	CaO - 34% (Min.) and MgO -5% (Max.)
9	Magnesite	MgO -35% (Min.), CaO -3% (Max.), Fe_2O_3 - 3% (Max.)
10	Manganese Ore	Mn - 10% (Min.)
11	Wollastonite	35%(Min.) Wollastonite content



Legal Framework in Indian Mining Industry

Mineral Conservation and Development Rules, 2017

Mines & Minerals (Development & Regulation) Act, 1957

Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016

Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016

National Mineral Exploration Trust Rules, 2015

Mines & Minerals (Contribution to District Mineral Foundation) Rules, 2015

Minerals (Evidence of Mineral Contents) Rules, 2015

Mineral (Auction) Rules, 2015

National Mineral Policy

Mineral Concession Rules, 1960

Offshore Mineral Concession Rules, 2006



Minerals (Evidence of Mineral Contents) Rules, 2015

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REGD. NO. D. L.-33004/99



असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)

PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 246]

नई दिल्ली, शुकवार, अप्रैल 17, 2015/चैत्र 27, 1937

No. 246]

NEW DELHI, FRIDAY, APRIL 17, 2015/CHAITRA 27, 1937

खान मंत्रालय

बधिसूचना

Geophysical and Geochemical Prospecting

Geophysical exploration techniques used for finding hydrocarbons, coal and metals:

- seismic reflection and refraction,
- gravity surveys,
- magnetic survey using proton magnetometer,
- electrical resistivity
- down hole logging surveys.

Geochemical exploration methods:

- soil sampling
- stream sampling.

Direct exploration methods:

- Mapping
- Drilling