

File No. C-284/3/CMG/2017
Government of India, Ministry of Mines,
Indian Bureau of Mines

Nagpur, dated 24/03/2017

NOTICE

Sub: Inputs invited from all the stake holders including concerned members of public for revision of the threshold value of minerals

Indian Bureau of Mines (IBM) a subordinate office of Ministry of Mines, Government of India is engaged in the conservation and development of the valuable mineral resources of the country. To address the issue of conservation & sustainable use of the minerals resources, the 'National Mineral Policy-2008' (NMP-2008) laid great emphasis on conservation and judicious use of the mineral resources of the country. Para 7.2 of NMP-2008 is reproduced below.

" Conservation and Mineral Development: Conservation of minerals shall be construed not in the restrictive sense of abstinence from consumption or preservation for use in the distant future but as a positive concept leading to augmentation of reserve base through improvement in mining methods, beneficiation and utilisation of low grade ore and rejects and recovery of associated minerals. There shall be an adequate and effective legal and institutional framework mandating zero-waste mining as the ultimate goal and a commitment to prevent sub-optimal and unscientific mining. Non-adherence to the Mining Plan based on these parameters will carry repercussions. Mineral sectoral value addition through latest techniques of beneficiation, calibration, blending, sizing, concentration, pelletisation, purification and general customisation of product will be encouraged. This is particularly important in iron ore mining as about 80% of the iron ore produced in the country is in the form of Fines and to promote such value addition fiscal and non fiscal incentives will be considered. A thrust will be given to exploitation of mineral resources in which the country is well endowed so that the needs of domestic industry are fully met keeping in mind both present and future needs, while at the same time exploiting the external markets for such minerals. It is a multi-disciplinary organization engaged in promotion of conservation, scientific development of mineral resources and protection of environment in mines other than coal, petroleum & natural gas, atomic minerals and minor minerals. IBM is providing the vital mineral intelligence inputs to the Government and also advises Government to take policy initiatives on various facets of the mines and mineral sector. "

To this effect IBM has always played a proactive role and had fixed the threshold value for fifteen minerals namely apatite & rock phosphate, bauxite, barytes, chromite, china clay/kaolin, fluorite, graphite, gypsum, iron ore, kyanite/sillimanite, limestone, manganese, magnesite, talc/steatite/soapstone and Wollastonite in 1990 (Annexure-I). Subsequently, the threshold values of minerals were reviewed and the threshold value for 12 minerals namely apatite & rock phosphate, bauxite, baryte, chromite, dolomite, fluorite, graphite, iron ore, limestone, magnesite, manganese ore and wollastonite were notified in the year 2009 vide Gazette Notification dated 16th October 2009 (Annexure II).

The threshold value of minerals has been defined in the 'Minerals (Evidence of Mineral Contents) Rules, 2015' as :

“Threshold Value of minerals” means limit prescribed by the Indian Bureau of Mines from time to time based on the beneficiability and or marketability of a mineral for a given region and a given time, below which a mineral obtained after mining can be discarded as waste.”

In view of the changing market dynamics and availability of new technologies for upgrading the low grade resources, it is once again proposed to review the threshold value for the following major minerals **apatite & rock phosphate, bauxite, chromite, fluorite, graphite, iron ore, limestone, magnesite, manganese ore and wollastonite** notified in the year 2009 and add or delete any major minerals to the existing list under provision of rule 12(7) of "Mineral Conservation and Development Rules, 2017" (MCDR, 2017). The provision in the rule is reproduced below.

"Rule 12(7)-Indian Bureau of Mines shall review the threshold values of minerals periodically in consultation with the stake holders."

In view of the above comments and suggestions are hereby invited from all the stake holders including general public on the following aspects:

1. Inclusion or deletion of any major mineral from the list of minerals for which threshold value was notified in 2009,
2. Changes in the threshold value of the major minerals values of which were notified in 2009, with justifications,
3. Suggested threshold value for the new major minerals proposed to be included in the list with justification.

The comments/suggestions may be sent by e-mail to the following ID: cmg@ibm.gov.in

Alternatively, comments/suggestions may also be sent by post to the following address:

**Shri S.K. Adhikari, Chief Mining Geologist,
Indian Bureau of Mines,
1st floor, Indira Bhawan,
Civil Lines, Nagpur-440001.**

The last date for receipt of the comments/suggestions is **15.04.2017**.

THRESHOLD VALUE OF MINERAL REJECTS

The Threshold value of the 15 mineral rejects are given below:

1. **Apatite and Rock Phosphate**: It was decided that in general 5% P₂O₅ should be taken as threshold limit for the low grade rejects so that the average grade can be maintained at 10% P₂O₅ which can be easily beneficiated. This is based on IBM's beneficiation test work where the tailing content is upto 3.5% P₂O₅.
2. **Bauxite**: Threshold value for bauxite are as follows:

THRESHOLD VALUES FOR BAUXITE

S.NO.	REGION	SPECIFICATION FOR REJECTS			REMARKS
		Al ₂ O ₃	SiO ₂	MODULE	
1.	EASTERN GHATS (Eg. PANCHPATMALI, SAPPARIA, KORUKONDA ETC.)	<35%	>5%	<7	THE BLENDED BAUXITE MAY CONTAIN <3% SiO ₂
2.	WESTERN GHATS (Eg. DHANGARWADI DEPOSIT, INLAND HIGH LEVEL PLATEAUX) (Eg. AMARKANTAK, PHUTKAPAHAR, LOHARDAGA AND GUMLA, PLATEAUX AND HILLOCKS) (Eg. KATNI DEPOSIT)	<44%	>4.5%	<9.8	THE BLENDED ORE MAY CONTAIN <3.5% SiO ₂
3.	COASTAL PLAINS (Eg. KUTCH DEPOSITS AND OTHER DEPOSITS OF GUJARAT.	<42%	>4.5%	<9	THE BLENDED MAY CONTAIN <3% SiO ₂

3. **Barytes**: (All India)

BaSO₄- 50% (Min)
Sp.Gr. - 3.5% (Min)

4. **Chromite**: (a) In chromite deposits, all chromiferous unsaleable fractions produced in the process of sizing and grading should be separately stacked. (b) All disseminated unsaleable ores occurring in the pits, either towards the wall rocks of chromite ore zones or as cappings or in any other manner should, irrespective of Cr₂O₃ content, be stacked separately. It was felt that further investigations are required to arrive at a firm figure.

5. **China clay/Kaoline**:

Kaolinite content - 20%

6. **Fluorite:** Working mines are at present located in Gujarat, Rajasthan and Madhya Pradesh. These mines are mostly in public/ joint sectors. The threshold value for mines in Rajasthan was decided at 5% CaF_2 and for other regions like Gujarat and Madhya Pradesh it was fixed at 10% CaF_2 .
7. **Graphite:** The Conference has recommended two different threshold values for graphite, one for flaky variety and one for amorphous variety.
1. For flaky variety : 2% Fixed Carbon
 2. For Amorphous variety: 10% Fixed Carbon
8. **Gypsum:**
Gypsum with 50% $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ (Min)
 Na_2O 1% (Max)
9. **Iron ore:**
A)Goan Iron Ores:
(i) Siliceous ore - 40% Fe
(ii) Hematitic ore - 55% Fe
(Both Lumpy and Powdery ore)
- B) Bellary Hospet region - 58% Fe (Provisional)
10. **Kyanite and Sillimanite** : The threshold value of kyanite and sillimanite was decided at 20-25% Al_2O_3 with total alumina of 35-40%. It was further suggested that the sillimanite of beach sand will not come under the above purview.
11. **Limestone** : (A) (Northern and western states)
CaO - 34% (Min)
MgO - 4%(Max)
 SiO_2 - 18% (Max)
Alkalies - 0.5% (Max)
- (B) (Southern states)
CaO - 35% (Min)
MgO - 4% (Max)
 SiO_2 - 18% (Max)
Alkalies - 0.5% (Max)
12. **Manganese:** Threshold value for the manganese ore may be kept at 10% Mn for the present irrespective of size but it could be modified or changed for a particular mine or region if considered necessary by the IBM after conducting the study. The mine operators will also be free to stack the lower grade material separately if they so desire.

13. Magnesite :

- (1) For deposits of Tamil Nadu: MgO - 35% (Min);
SiO₂ - 18% (Max)
- (2) For deposits of Uttar Pradesh: MgO - 35% (Min);
CaO - 6% (Max)

No size specification was supported for both the regions as the beneficiation involved is based on the chemical route.

14. Talc/ Steatite/ Soapstone:

1. Whiteness - 68% (Min)
2. Carbonate Content - 25% (Max)
3. Talc Content - 40% (Min)

15. Wollastonite:

The material with 40% wollastonite content should be the threshold value for wollastonite deposits of India.

**MINISTRY OF MINES
INDIAN BUREAU OF MINES
NOTIFICATION
NAGPUR ,THE 16TH OCTOBER, 2009**

No.T-45031/CGBM/2007(PF)- In exercise of the powers conferred on me under Rule 54 of the Mineral Conservation and Development Rules 1988 and in consultation with state Governments and with previous approval of the Central Government, in the interest of systematic development of mineral deposits and conservation of minerals, I hereby notify the threshold values of minerals as indicated below and hereby direct for immediate compliance. These directives are in supersession of the earlier directives issued in this regard.

THRESHOLD VALUE OF MINERALS FOR IMPLEMENTATION

S.NO.	MINERAL	THRESHOLD VALUE
1.	APATITE & ROCK PHOSPHATE	P ₂ O ₅ – 5%(MIN.)
2.	BAUXITE	(i)FOR ALUMINOUS LATERITE: Al ₂ O ₃ - 20% (MIN) (ii) FOR BAUXITE: Al ₂ O ₃ - 30% (MIN) AND SILICA (REACTIVE) - 5% (MAX)
3.	BARYTES	BaSO ₄ : 50% (MIN) Specific Gravity - 3.5 (MIN)
4.	CHROMITE	Cr ₂ O ₃ : 10%(MIN)
5.	DOLOMITE	MgO : 15% (MIN) SiO ₂ : 6% (MAX) TOTAL INSOLUBLES: 12% (MAX)
6.	FLUORITE	CaF ₂ : 5%(MIN)
7.	GRAPHITE	(i)FOR FLAKY VARIETY: 2% FIXED CARBON (F.C) (MIN) (ii)FOR AMORPHOUS VARIETY: 10% FIXED CARBON (F.C) (MIN)
8.	IRON ORE	(i)HEMATITIC IRON ORE: 45% Fe(MIN) (ii) HEMATITIC SILICEOUS ORE (FOR ORE OF GOAN ORIGIN): 35% Fe(MIN)
9.	LIMESTONE	(i)FOR LIMESTONE DEPOSITS IN CHHATTISGARH, GUJARAT, HIMACHAL PRADESH, MADHYA PRADESH, MAHARASHTRA, RAJASTHAN, UTTARAKHAND & UTTAR PRADESH: CaO - 34% (MIN), MgO - 4% (MAX), (ii) FOR LIMESTONE DEPOSITS OF ANDHRA PRADESH, JHARKHAND, KARNATAKA, KERALA, ORISSA AND TAMILNADU: CaO - 35% (MIN), MgO - 4% (MAX), SiO ₂ - 18%(MAX) & ALKALIES - 0.5%(MAX)

10.	MAGNESITE	MgO - 35% (MIN) CaO - 3% (MAX) Fe ₂ O ₃ - 3% (MAX)
11.	MANGANESE ORE	Mn : 10% (MIN)
12.	WOLLASTONITE	35%(MIN) WOLLASTONITE CONTENT

For implementation of aforesaid threshold values of minerals the following term is defined:
“Threshold Value of minerals” means limit prescribed by the Indian Bureau of Mines from time to time based on the beneficiability and or marketability of a mineral for a given region and a given time, below which a mineral obtained after mining can be discarded as waste.

The mine owners are directed to comply with following.

1. All the non-saleable/un-usable minerals/ ores above the limit prescribed in the threshold values are required to be stacked separately in the area earmarked for the purpose.
2. The mineral/ ore stock above the limit prescribed in the threshold values of minerals should be properly maintained in a bound register indicating the quantity and quality of material stacked. The month wise inventory of such materials shall be updated.
3. The overburden and waste material obtained during mining operation shall not be allowed to be mixed with the materials above the threshold values of minerals stacked.

C.S.GUNDEWAR
CONTROLLER GENERAL