Jharkhand Minor Minerals (Evidence of Mineral Contents) Rules, 2018

JHARKHAND India

Jharkhand Minor Minerals (Evidence of Mineral Contents) Rules, 2018

Rule

JHARKHAND-MINOR-MINERALS-EVIDENCE-OF-MINERAL-CONTENTS of 2018

- Published on 1 January 2018
- Commenced on 1 January 2018
- [This is the version of this document from 1 January 2018.]
- [Note: The original publication document is not available and this content could not be verified.]

Jharkhand Minor Minerals (Evidence of Mineral Contents) Rules, 2018In exercise of the powers conferred by section 15 of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) and in the light of Jharkhand Minor Mineral (Auction) Rules, 2017, the Government of Jharkhand hereby makes the following rules, namely:-

1. Short title and commencement.

(1) These rules may be called the Jharkhand Minor Minerals (Evidence of Mineral Contents) Rules, 2018.(2) It shall come into force on the date of its publication in the Official Gazette.

2. Application.

- These rules shall extend to the whole State of Jharkhand and shall apply to minor minerals as specified in clause (e) of section 3 of Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957) (Schedule-II). "minor minerals" means building stones, gravel, ordinary clay, ordinary sand other than sand used for prescribed purposes, and any other mineral which the Central Government may, be notification in the Official Gazette, declare to be a minor mineral.

3. Definitions and interpretation.

- In these rules, unless the context otherwise requires,-a. "Act" means the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957);b. "Evidence of mineral contents" means the

1

existence of mineral contents established by the process of geological exploration according to the norms fixed in Schedule-1 of these Rules.c. "Threshold value of minerals" means the limits prescribed by the Indian Bureau of Mines or Government of Jharkhand from time to time based on the beneficiability and marketability of a mineral for a given region and for given time, below which the material obtained after mining can be discarded as waste;d. "Schedule" means the Schedule annexed to these rules;e. The expressions General Exploration (C2) & Detailed Exploration (C1), Feasibility Study (FS) used in these rules shall have the meanings assigned to them in Part-1 of the Schedule-1.f. All other words and expressions used in these rules, but not defined, shall have the same meaning as assigned to them in the Act or the rules made there under.

4. Preparation of mineral blocks.

- A mineral block may be defined as an area where there is evidence to show the existence of mineral contents in accordance with the parameters prescribed in Schedule-1. The Government may grant a mining lease composite license through Electronic Auction, in the manner specified in Jharkhand Minor Mineral (Auction) Rules, 2017. Mineral Blocks should be prepared in defined geometrical shapes as far as possible.

5. Existence of mineral contents for grant of composite license.

(1)An area may be notified for auction to grant a composite license under chapter III of Jharkhand Minor Mineral (Auction) Rules, 2017 if, in respect of such area:-(a)General Exploration (C2) has been completed to establish Inferred Mineral Resource.(b)A geological report has been prepared conforming to Part-III A of the schedule.

6. Existence of mineral contents for grant of mining lease.

- An area shall be considered for grant a mining lease under Chapter II of Jharkhand Minor Mineral (Auction) Rules, 2017 if, in respect of such area:-(a)Detailed Exploration (C1) has been completed to establish Indicated/Measured Mineral Resource.(b)A geological report has been prepared conforming to Part-III A of Schedule-1.

7. Relaxation.

- Depending upon the local geological setup, mode of occurrence and nature of mineralization, the Government (State Cabinet) may relax the exploration norms as specified in Part III of Schedule-1, in whole or in part for any mineral or any area.

Schedule 1

Evidence of Mineral ContentsExistence of mineral content will have to be established in an area for the purpose of auction of Mineral Block by carrying out exploration as per the suggested geological parameters and exploration norms given in Part-I, II and III of Schedule-I.Part-1 1. Definitions. -

The exploration for any minor mineral deposit involves two stages namely, General Exploration (C2) and Detailed Exploration (C1). These stages of exploration lead to resource categories namely Inferred Mineral Resource and Indicated/Measured Mineral Resource respectively reflecting the degree of geological assurance.

- 2. General Exploration (C2). involves the initial delineation of as identified deposit. Methods used include surface mapping, pitting/trenching/drilling. followed by sampling for evaluation of mineral quantity and quality (including mineralogical tests on laboratory scale if required), and limited interpolation based on indirect methods of investigation. The objective is to establish the main geological features of a deposit, giving a reasonable indication of continuity and providing an initial estimate of size, shape, structure and grade.
- 3. Detailed Exploration (C1). involves the detailed three-dimensional delineation of a known deposit achieved through sampling, such as from outcrops, pits, trenches, boreholes, shafts and tunnels etc. Sampling grids are closely spaced such that size, shape, structure, grade and other relevant characteristics of the deposit are established with a high degree of accuracy. Processing tests involving bulk sampling may be required.
- 4. Mineral Resource. is a concentration or occurrence of solid material of economic interest in or on the earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are subdivided, in order of increasing geological confidence into Reconnaissance, Inferred, Indicated and Measured resource categories which are defined as follows:-
- (a)Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling achieved through a stage of preliminary exploration. As Inferred Resource has a lower level of confidence that that applying to an Indicated Mineral Resource and shall not be converted to a Mineral Resource. The majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.(b)Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from

adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.(c)Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Reserve or to a Probable Mineral Reserve.

- 5. A Feasibility Study (FS) is a detailed comprehensive economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable).
- 6. Feasibility Mineral Resource. A Feasibility Mineral Resource is that part of Indicated/Measured Mineral Resource which is not economically mineable as, defined by studies at feasibility level. This material is identified as being possibly economically viable subject to changes in technological, economic, and environmental and/ or other relevant conditions.
- 7. Mineral Reserve is the economically mineable part of a Measured and Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Feasibility level as appropriate that include application of Modifying Factors which are factors those are taken into consideration while conducting a Pre-feasibility or feasibility study so as to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, end use, cut-off grade, threshold value, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors, Mineral reserve may further be categorized as:-
- (a)Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proved Mineral Reserve.(b)Proved

Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the Modifying Factors.Part-II Geological Parameters and Exploration Norms

- Aerial reconnaissance: Satelliteimagery/aerial photograph studies, as per necessity.
 Topographic & Geological survey(Mapping): General Exploration stage:1:50,000 to
 1:4,000 scale and Detailed Exploration stage larger than 1:4,000 to1:1,000 scale as per type of
- 2. mineral deposit. Geological mappingduring general and detailed exploration to be carried out withthe help of Total Station, Theodolite and other Electronic SurveyInstruments. Exploration block to be geo-coordinated with thehelp of DGPS/GPS.
- 3. Ground Geophysical and Geochemical survey: Geophysical and geochemical survey using appropriate techniques, as may be necessary, for the style of mineralization as perrequirement. Technology:-Exploration and sampling using appropriate techniques fromlocations such as outcrops, trenches, pits, old workings and drill holes. The sampling locations are spaced suitably (in agride pattern to the extent possible and may be modified depending on structural complexity) for establishing existence of mineralized body and its lateral and vertical
- 4. continuity. The lateral extension to be considered for resource assessment shall depend ongeological considerations supplemented by geological continuity mapping or by other means and in any case shall not be morethan 50% of the grid spacing of the probe points. Assessment based on selected information such asisolated assays, isolated drill holes, assays of panned concentrates etc. is not recommended.
 - exposure/escarpments/nalacuttings/pit/channel etc.b. Systematicsampling from pits/trenches/outcrops/workings etc. spaced closelyenough to confirm geological and grade continuity for otherstages of geological assessment.c. Geological loggingand sampling of drill core/chip samplex at regular interval,preferably metre wise or less for the mineralized portions.d. The drilltechnique to be deployed shall depend on the rock type to bepenetrated and with an aim to achiever maximum sample/corerecovery.e. The exploration samples including
- 6. Assay date & Laboratory tests:Analysis of all samples generated for major radicals appropriate to the mineral under investigation.

surfacesamples, drill core/chip samples shall be preserved for futureuse.

Sampling & subsampling:a. Randomgrab/chip/channel sampling from surface

- Petrographic & Mineragraphic studies:Petrographic analysis of mineralized portions to ascertain therock types and mineral assemblages including grain size, texture,gangue and its liberation characteristics etc. if considerednecessary.
- 8. Bulk density study: The bulk density mustbe measured by methods that adequately account for incipient voidspaces (vugs, porosity etc.) in mineral/ore body.
- Bulk Sampling for Beneficiation studies: Bulk sampling, if necessary, for testing processing technology.
- Environmental setting: Details aboutlocal infrastructure, host population, historical sites, 10. forests, sanctuaries, national park and base line information onenvironmental setting of the area to be collected.

11.

Any other relevant data:Groundwater,geotechnical and rock characteristics etc. that may be relevant.

Part III – Exploration Norms (category-wise) for different types of Minor Mineral Deposits/Mineralization

Category

Type of deposit & Principal Minerals

Buildingmaterials/Road materials/General stonesBedded Stratified and Tabular deposits of regular and irregular habit:Road Metal, Boulder, Murrum, Calcareous Sand, Diaspore, Laterite, Lime Kankar, Sand (others), Quartzite and Sand Stone (for making road metal), ordinary earth (used orfilling or leveling purposes in construction or embankments.roads. railways, building) Brickearth, Ordinary Earth Soft &Murrum, Felsite, Shale, Slate, Shingle, Chalcedony pebbles usedfor ball mill purpose only, Lime shell, Kankar and Limestone usedin kilns for manufacture of lime used as building materials, Gneissic & schistose rocks, Aeid and Basic rock, Gabbro, Dolerite, Basalt, Norite etc. Phyllite, Quartzite, Sandstone, Slate, Boulder, Chalcedony Pebbles, Gravel, Ordinary Sand and Quartzite Pebbles, Trachyte, and Ordinary Clay.

General Exploration (C-2)

1. GeologicalSurvey:i Geological Mappingon 1:50,000 to 1:4,000 scale with boundary demarcation with GPS.ii. **Broad assessmentof** lithology, structure, surface extension of mineraliii. Recording ofbroad geomorphology,2 GeochemicalSurvey; not necessary3. Ground geophysical survey; not necessary.4. Technology;i Pitting/TrenchingAs per requirement to proof mineralization in the areaii. Scout drilling;not necessary.iii. sampling; Regional and random grab/chip sample for geotechnical, specificgravity studies as per necessity.iv. Bulkdensity/specific gravity5. Integration of all date and identification ofblocks for further

Detailed Exploration (C-1)

1. GeologicalSurvey:iv. Mapping on1:4,000 to 1:1,000 scale with boundary demarcation with GPS.v. Assessment oflithology, structure, surface extension of mineralvi. Recording ofgeomorphology drainage, weather profile.2. GeochemicalSurvey; not necessary3. Geophysical survey; not necessary4. Technology;i. Pitting/trenching;2 to 5 per sq km per prospect.ii. Drilling; notnecessary.iii. Samplingsystematic, grab chip, pit & trench sampling for geotechnical studies.iv. Geotechnical studies: measurement of compressive strength, tensile strengthetc. if necessaryv. Bulkdensity/specific gravity study.5. Petrographic and mineralogical studies as perrequirement.

1 GeologicalSurvey:iGeological Mappingon

exploration

1 GeologicalSurvey:i. Mapping on1:4,0000 to

В.

A.

Industrialminerals(i)

BeddedStratified and

Tabular deposits of regular and irregular habit:Ball Clay, Red Clay Lithomargic Clay, PozzolanicClay, Natural Clay, Diatomaceous lithology, structure, Clay, Bentonite, Chalk, Dolomite, Fireclay, Fuller's Earth, Gypsum, Quartzite, MoldingSand, Silica sand, Barytes, Chinaclay, Kaloin, Reh Matti, Ochre, Calc-Tuffa

1:50,000 to 1:4,000 scale 1:1,000 scale with with boundary demarcation with GPS.ii. **Broad assessmentof** surface extension of mineraliii. Recording ofbroad geomorphology, drainage, weather profit2. Necessary.4. GeochemicalSurvey; not necessary3 Ground geophysical survey; not necessary4 Technology:iv. requirementii. Drilling Pitting TrenchingAs per requirement to proof mineralization in the area.v. Scout drilling notnecessary.vi Sampling; for irregular habit.iii. Regionaland random grab/chip sample for geotechnical, specific gravitystudies as per necessity.vii. Bulkdensity/specific gravity5. Integration of all Bulkdensity/specific data and identification ofblocks for further exploration.

ii. Lenticular bodies of all dimensions including Bodies occurring on echelon, silicified linear zones of composite veins. Lenses, pockets, stockworks; Broad assessment of irregular shaped modest to small sized bodiesaGeneral Industrial MineralsCalcite,Clay (Others), Feldspar, Ochre, Quartz, Steatite or Tale orSoapstone, China Clay, Kaolin and White Clay.

1 GeologicalSurvey:i. Geological Mappingon 1:50,000 to 1:4,000 scale with boundary demarcation with GPS.ii. lithology, structure, surface extension of mineral.iii. Recording ofbroad geomorphology, drainage, weather profile2. GeochemicalSurvey; not necessary3. Ground geophysical survey: not

boundary demarcation with GPS.ii. Assessment oflithology, structure, mineralization extent.2. GeochemicalSurvey: Not Necessary3. Geophysical survey: Not Technology:i. Pitting/Trenching2 to 5 per sq km or as per Coredrilling on grid spacing of 400m or closer for deposits of regular habit and 200m or closer Sampling; systematic pit & trench sampling. Core/sludge samplingmineralization wise.iv. Chemical analysis of all samples.v. gravity study.1 Petrographic and mineralogical studies as perrequirement. 1 GeologicalSurvey:i. Mapping on 1:4,000scale to 1:1,000 scale with boundary demarcation with GPS.ii. Assessment oflithology, structure, mineralization extent.2. GeochemicalSurvey: Not Necessary3. Geophysical survey; Not Necessary.4 Technology:i. Pitting/Trenching2 to 5 per sq km or as per

requirement.ii. Drilling:

necessary.4. Technology:i. Coredrilling on grid Pitting/Trenching:As per requirement to proof mineralization in the area.ii. Scout drillingnot necessary.iii. Sampling:Regional and random grab/chip sample Core/sludge for geotechnical, specificgravity studies as per necessity.iv. Bulk densityspecific gravity.5. Integration of all data and gravity study.5. identification of blocks for Petrographic and further exploration.

spacing of 400m or closer for deposits of regular habit and 200m or closer for irregular habit.iii Sampling; systematic pit & trench sampling. samplingmineralization wise.iv Chemical analysis of all samples.iv. Bulk densityspecific mineralogical studies asper requirement.

b. Precious & Semi Precious Ultra basic rocks and MicaAgate, (gemvarities), Dunite, Peridotite,

Geological Mappingon Stones, Pegmatite,:50,000 to 1:4,000 scale with boundary demarcation boundary demarcation with GPS.ii. Broad assessment of lithology, Corundum, Diaspetreicture, surface extension mineralization extent.3. of mineral.iii. Recording ofbroad geomorphology, drainage, weather profile2. Pyroxenite and GeochemicalSurvey; not Micaall varities. necessary3. Ground geophysical survey; not necessary.4. Technology:i. Pitting/Trenching; As per requirement to proof mineralization in the areaii. samplesv. Bulk Scour drillingnot necessaryiii. SamplingRegional and random grab/chip sample for geotechnical, specificgravity studies as per necessity.iv. Bulkdensity/specific gravity.5. Integration of all

1. GeologicalSurvey:i.

1 GeologicalSurvey:i. Mapping on 1:4,000scale to 1:1,000 scale with with GPS.ii. Assessment oflithology, structure, Geophysical survey; Non Necessary, 4. Technology:i. Pitting/Trenching2 to 5 per sq km or as er requirementii. Drilling; Notrequirediii. Samplingsystematic pit & trench samplingiv. Chemical analysis of all density/specific gravity study.5. Petrographic, Gem Testing and mineralogical studies as per requirement.

date and identification ofblocks for further

exploration.

Dimension and Decorative StonesGranite (Granite means dolerites, granitegneisses, migmatities, gabbros, anorthosites, rhyolites, syenites, leptynites, charnockites and geophysicalsurvey; not any other igneous andortho-metamorphic rock Pitting TrenchingAs per types) Marble (marble means crystalinemetamorphosed calcareous or dolomitic rocks and serpentine rocktypes) BHJ, Fuschite Quartzite.

1 Geological Survey:i. Geological Mappingon 1:50,000 to 1:4,000 scale with boundary demarcation with GPS.ii. Broad assessment of lithology, structure, surface extension of mineraliii. Recording ofbroad geomorphology, drainage, weather profile2. GeochemicalSurvey; not necessary3. Ground necessary.4. Technology;i requirement to proof mineralization in the area.ii. Scout drilling;not necessary.iii. SamplingRegional and random grab/chip sample for geotechnical, specificgravity studies as per necessity.iv. Bulkdensity/specific gravity.5. Integration of al data and identification ofblocks for further exploration.

1. Geological Survey:i. Mapping on 1:4,000to 1:1,000 scale with boundary demarcation with GPS.ii Assessment oflithology, structure, mineralization extent.2. GeochemicalSurvey; Not Necessary3. Geophysical surveyNon Necessary.4. Technology;i. Pitting/Trenching2 to 5 per sq km or as per requirementii. Drilling; Notrequired.iii. Sampling 2 to 3grabs per prospect.iv. Geotechnical; Further refinement of blockability data, polishing indexmeasurement, measurement of compressive strength, tensilestrength etc.v. Bulk density/specific gravity study.5. Petrographic and mineralogical studies as perrequirement.

Part - III A Reporting of Minor-Mineral Resources A Geological Study Report for estimation and reporting of Minor Mineral Resources may be prepared integrating all data of exploration (sampling and testing generated through aerial, geophysical, geochemical surveys and technological study) collected for assessing the resources as per the stage of exploration. The report may incorporate, among other things, the following contents:

Sl. Contents Explanation

- 1 Title & Ownership
- Title of Report• Details of period ofprospecting/mineral right if any• Details of exploration agency, qualification, experience of associated technical persons engaged in exploration
- 2. Details of the area
- Mauza/Village, PostOffice, Taluka, District, State.• Survey of IndiaToposheet/OSM Sheet Number and Geo-coordinates of the

C.

		area of allcornet points.• Mineral(s) under investigation.
3.	Infrastructure &	Local infrastructure, host population, historical sites, forests,
J.	Environment	sanctuaries, national park and environmental settings of the area.
4.	Previous exploration	 Details of previous exploration carried out byother agencies/parties.
5.	Geology	• Brief regionalgeology of the area outlining the broad geological, structuralframe work.• Local Geology, Deposit/mineralization type, geological setting and details ofdip, strike, old workings, surface exposures etc. of the areaunder study also of adjoining nearby areas if the information islikely to have an impact on the area under study.• Geological map of appropriate scale with geocoordinates showing major litho-logical units, structural features; extent of surface minear lization, location of boreholes, pits, trenches, old workings etc.
6.	Aerial/ground geophysical/geochemical Data	Details of aerial, geophysical & geochemical survey results taken up if any and their results (if carriedout).
7	Technological investigation	Details of technological investigation(pitting/trenching/dilling etc.).
8.	Type of Sampling	Grab, Channel, random etc.
9.	Drilling technique & drill sampling employed	• Drill type anddetails like core diameter, collar R.L., azimuth, inclination, coordinates of bore holes etc. • Whether core and chipsample recoveries have been properly recorded and results assessed • Measures taken to maximize sample recovery and ensure representative nature of the samples. • Whether are lationship exists between sample recovery and grade. • Logging-Whether core and chip samples have been logged to a level of detail to support • Appropriate Mineral Resource estimation, mining studies.
10.	Grade and chemical analysis	Chemical analysis date fore grade determination and procedures
11.	Bulk Density/Specific Gravity	Whether assumed or determined.
13.	Resource estimation techniques	• Discussion onmineralization and techniques for resource estimation• The nature and appropriateness of the estimationtechniques applied and key assumptions, including treatment of extreme grade values, maximum distance of
		extrapolation from datapoints.
14.	Geotechnical Studies For Dimensional stonereport	• Assessment of Blockability • Polishing Index • Measurement of compressive strength, tensilestrength etc.

logs, analysis reports, photographsetc. in support of the estimates

report

made.

16. Any other information

Any other information as may be available orrequired by any authority as prescribed.

Ш

Minor MineralsCategorization of Minor Minerals for conditions relating to grant of Mineral Concessions

Category-A

Category-B

(ii) Lenticular bodies of

alldimensions including Bodies occurring in echelon, silicifiedlinear zones of composite veins. Lenses, pockets, stock works;irregular shaped modest to small sized bodiesa. General Industrial MineralsCalcite, Clay (Others), Faldspar,Ochre, Quartz, Steatite or Talc or Soapstone, China Clay, Kaolinand White Clay.b. Precious & Semi PreciousStones, Pegmatite, Ultra basic rocks and

Building materials/Roadmaterials/General stonesBedded Stratified and Tabulardeposits of regular and irregular habit:Road Metal, Boulder, Murrum, Calcareous Sand, Diaspore,Laterite, Lime Kankar, Sand (others), Quartzite and Sand Stone(for making road metal), ordinary earth (used or filling orleveling purposes in construction or embankments, roads,railways, building) Brick-earth, Ordinary Earth, Soft &Murrum, Felsite, Shale, Slate, Shingle, Chalcedony pebbles usedfor ball mill purpose only, Lime shell, Kankar and Limestone usedin kilns for manufacture of lime used as building materials,Gneissic & schistose rocks, Acid and Basic rock, Gabbro,Dolerite, Basalt, Norite etc. Phyllite, Quartzite, Sandstone,Slate, Boulder, Chalcedony Pebbles, Gravel, Ordinary Sand andQuartzite Pebbles, Trachyte, and Ordinary Clay.

Industrial minerals(i) Bedded Stratified and Tabular deposits of regular and irregular habit: Ball Clay, Red Clay
Lithomargic Clay, Pozzolanic Clay, Natural Clay,
Diatomaceous Clay, Bentonite, Chalk, Dolomite,
Fireclay, Fuller's Earth, Gypsum, Quartzite, Molding Sand,
Silica sand, Barytes, Chinaclay, Kaolin, Reh Matti, Ochre,
Cale-Tuffa.

MicaAgate, Corundum, Diaspore

(gem varities), Dunite, Peridotite,Pyroxenite and Mica all varities.

Category-C

Dimension and Decorative StonesGranite (Granite means dolerites, granite gneisses, migmatites, gabbros, anorthosites, rhyolites, syenites, leptynites, charnockites and any other igneous andortho-metamophic rock types) Marble (marble means crystallinemetamorphosed calcareous or dolomitic rocks and serpentine rocktypes) BHJ, Fuschite Quartzite.