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SPECIFICATIONS FOR RAW MATERIALS

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BIKANER CLAY POWDER

1. General : This Specification governs the requirements of Bikaner Clay. The clay shall be free from foreign material such as sand, red ochere and lumps.

2. Application : To serve as one of the constituents in the Ceralin.

3. Form : It should be in powder form

4. Physical Properties :
   a) Particle size above 10µm 9±4%
   b) Free iron content shall be less than 0.05%.
   c) 75 Microns sieve : 100% Pass
   d) Retention on 45µm sieve :1.5% Max.
   e) Water absorption less than 0.5%
   f) Green Strength Min. 50 kgs/cm^2

5. Chemical Composition :
   a) SiO_2 : 57.5 ± 3.5%
   b) Al_2O_3 : 28.5 ± 2.5%
   c) Fe_2O_3 : Less than 2%
   d) L.O.I : 11.0 ± 2.0%

6. Packing : 50 kg in HDPE double bags

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BIKANER CLAY

1. General : This Specification governs the requirements of Bikaner Clay.

2. Application : To serve as one of the constituents in the manufacture of porcelain body mass.

3. Particle Size : Particle Size
   above 10 µm : 9 ± 4 %

4. Residue over 45µm sieve : Maximum 1.5 %

5. % Water absorption : Less than 0.5 %

6. Green Strength (kgs/Cm^2) : Minimum 50.0

7. Viscosity : <=27 poise

8. Freedom from Defects : The clay shall be free from foreign materials such as sand and red ochere.

9. Chemical Composition : a) SiO_2 .... 57.5 ± 3.5 %

   b) Al_2O_3 .... 28.5 ± 2.5 %

   c) Fe_2O_3 .... Less than 2.0 %

   d) L.O.I..... 11.0 ± 2.0 %

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CALCINED ALUMINA FOR HVAC PORCELAIN

1. General : This Specification governs the requirement of Calcined Alumina

2. Application : To serve as one of the constituents in HVAC Alumina porcelain.

3. Freedom from Defects : Shall be free from foreign materials.

4. Properties : a) Al_2O_3 .... 99.5 % Minimum

   b) Na_2O .... 0.3 % Maximum

   c) Average Particle Size (D_{50} Value) : 5.5 µm (Max.)

   %Particl Size >10 µm:14 (Max.)

   d) Alpha Content : 95% Minimum

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CALCINED ALUMINA FOR CERALIN

1. General : This Specification governs the requirement of Calcined Alumina for Ceralin.

2. Application : To serve as one of the constituents in the manufacture of Ceralin

3. Freedom from Defects : Shall be free from foreign materials & supplier should guarantee minimum 90 % Alpha content

4. Properties : % Al_2O_3 : 99.2 % Minimum

% Na_2O : 0.35 % Maximum

% Particle Size >10 µm: 20% Max.

Average Particle Size (D_{50} Value) : 4.0 to 6 µm

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CALCINED ALUMINA FOR HVDC/HVACPORCELAIN

1. General : This Specification governs the requirement of Calcined Alumina.

2. Application : To serve as one of the constituents in the manufacture of HVDC / HVAC porcelain body.

3. Freedom from Defects : Shall be free from foreign materials & supplier should guarantee min.95% Alpha content.

4. Properties : Average Particle Size (D_{50} Value) : 5.5 µm Max.

% Particle Size above 10 µm : 14.0 max.

% Al_2O_3 : 99.5 Min.

% Na_2O : 0.10 Max

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ORDINARY PORTLAND CEMENT

1. General : This specification governs the Requirements of Ordinary Portland Cement

2. Visual Appearance : Should be free from moisture or water and should not have any nodules formed due to moisture.

3. Physical Properties : Optimum water content: 29.5 ± 2.0%

   Initial setting time: 2 to 4.0 Hours

   Final Setting time : 3 to 5 Hours

   Flow value : 200 ± 5 mm

4. Chemical Composition : a) CaO ... 62 ± 3.0 %

   b) MgO .... 1.5 ± 0.5 %

   c) SO_3 .... 2.2 ± 0.6 %

   d) L.O.I .... Less than 5 %

5. Mechanical Strength : Tensile strength :Min 40Kg/cm^2

   or

   Compressive strength :Min 700kg/cm^2

6. Autoclave Expansion : <= 0.12 %

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SPECIFICATIONS FOR RAW MATERIALS

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SPECIAL PORTLAND CEMENT

1. General : This Specification governs the requirements of special Portland cement.

2. Visual Appearance : Should be free from moisture or Water and should not have any Nodules formed due to moisture.

3. Physical Properties : Optimum water content : Max.22 %
Initial Setting Time :
80 Minutes to 200 Minutes
Final Setting Time :
135 Minutes to 240 Minutes

4. Mechanical Strength (After 6 days Hot water curing) : Tensile Strength : Min 40 kg/cm^2

or

Compressive Strength: Min 700kg/cm^2

5. Autoclave Expansion : <= 0.12%

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CALUNDUM CEMENT

1. General : This Specification governs the requirement of Calundum Cement.

2. Visual Appearance : Should be free from moisture or water and should not have any nodules formed due to moisture.

3. Application : To serve as a binder in the assembly of Ceralin in MS bends.

4. Physical Properties : 1. Minimum compressive strength of 3:1(cement:water) vibrated mortar using graded standard sand.

   At 1 day : Minimum 300 kgs/cm^2

   At 3 days: Minimum 350 kgs/cm^2

   2. Setting time :

   Initial(min): 15 to 45 minutes.

   Final(max) : 180 minutes

5. Chemical Composition : a) Al_2O_3 .... > 46 %

   b) Fe_2O_3 .... < 5 %

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FELCITE POWDER

1. General : This Specification governs the requirements of Felcite powder.

2. Application : To serve as one of the constituents in the manufacture of porcelain body mass.

3. Particle Size : Powder

   1. Residue over 1000 µm sieve shall be less than 1.5 %.

   2. Below 150 µm sieve shall be between 50% to 75%.

4. Freedom from Defects : Shall be free from foreign materials. Free Iron in powder shall not exceed 0.01%.

5. Chemical Composition : a) SiO_2 .... 75.5 ± 2.5 %

   b) Al_2O_3 .... 15.0 ± 1.5 %

   c) Fe_2O_3 .... Less than 1.5 %

   d) KNaO .... 8.0 ± 1.0 %

   e) L.O.I..... Less than 1.0 %

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SERICITE POWDER

1. General : This Specification governs the requirements of Sericite powder.

2. Application : To serve as one of the constituents in the manufacture of porcelain body mass.

3. Particle Size : Powder

   1. Residue over 1000 µm sieve shall be less than 1.0 %.

   2. Below 150 µm sieve shall be above 75%.

4. Freedom from Defects : Shall be free from foreign materials. Free Iron in powder shall not exceed 0.01%.

5. Chemical Composition : a) SiO_2 .... 50.0 ± 5.0 %

   b) Al_2O_3 .... 32.5 ± 2.5 %

   c) Fe_2O_3 .... Less than 1.0 %

   d) KNaO .... 8.0 ± 1.0 %

   e) L.O.I..... Less than 5.0 %

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L.A.PYROPHYLLITE POWDER

1. General : This Specification governs the requirements of L.A.Pyrophyllite.

2. Application : To serve as one of the constituents in the manufacture of porcelain body mass.

3. Particle Size : Powder

   1. Residue over 1000 µm sieve shall be less than 0.2 %.

   2. Below 150 µm sieve shall be above 80%.

4. Freedom from Defects : Shall be free from foreign materials. Free Iron in powder shall not exceed 0.01%.

5. Chemical Composition : a) SiO_2 .... 63.5 ± 3.0 %

   b) Al_2O_3 .... 28.0 ± 2.0 %

   c) Fe_2O_3 .... Less than 1.0 %

   d) KNaO .... Less than 1.5 %

   e) L.O.I..... 4.5 ± 1.5 %

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TALC

1. General : This Specification governs the requirements of Talc Powder.

2. Application : To serve as one of the constituents in the manufacture of alumina body and Ceramic glaze.

3. Form : It should be supplied in powder form and should pass through 150 µm sieve. (Data for information only)

4. Chemical Composition :
   a) SiO_2 .... 61.0 ± 2.0 %
   b) MgO .... 30.0 ± 2.0 %
   c) CaO .... Less than 6.0 %
   d) Fe_2O_3 .... Less than 3.0 %
   e) Al_2O_3 .... Less than 2.0 %
   f) L.O.I .... 4.0 ± 2.0 %

5. Moisture Content : Nil

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DOLOMITE POWDER

1. General : This Specification governs the requirements of Dolomite Powder.

2. Application : To serve as one of the constituents in the Ceramic glaze.

3. Form : It should be supplied in powder form and should pass through 150 µm sieve. (Data for information only)

4. Chemical Composition :
   a) CaO .... 30 ± 2.0 %
   b) MgO .... 20 ± 2.0 %
   c) Fe_2O_3 .... Less than 2 %
   d) L.O.I..... 43.5 ± 3.5 %

5. Moisture Content : Nil

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CALCITE POWDER

1. General : This Specification governs the requirements of Calcite Powder.

2. Application : To serve as one of the constituents in the Ceramic glaze.

3. Form : It should be supplied in powder form and should pass through 150 µm sieve. (Data for information only)

5. Chemical Composition : a) CaO .... 52 ± 2.5 %

   b) Fe_2O_3 .... Less than 2 %

   c) L.O.I..... Less than 50.0 %

6. Moisture Content : Nil

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SPECIAL PORTLAND CEMENT

1. General : This Specification governs the requirements of special Portland cement.

2. Visual Appearance : Should be free from moisture or Water and should not have any Nodules formed due to moisture.

3. Physical Properties : Optimum water content : Max.22 %
Initial Setting Time :
80 Minutes to 200 Minutes
Final Setting Time :
135 Minutes to 240 Minutes

4. Mechanical Strength (After 6 days Hot water curing) : Tensile Strength : Min 40 kg/cm^2

or

Compressive Strength: Min 700kg/cm^2

5. Autoclave Expansion : <= 0.12%

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CALUNDUM CEMENT

1. General : This Specification governs the requirement of Calundum Cement.

2. Visual Appearance : Should be free from moisture or water and should not have any nodules formed due to moisture.

3. Application : To serve as a binder in the assembly of Ceralin in MS bends.

4. Physical Properties : 1. Minimum compressive strength of 3:1(cement:water) vibrated mortar using graded standard sand.

   At 1 day : Minimum 300 kgs/cm^2

   At 3 days: Minimum 350 kgs/cm^2

   2. Setting time :

   Initial(min): 15 to 45 minutes.

   Final(max) : 180 minutes

5. Chemical Composition : a) Al_2O_3 .... > 46 %

   b) Fe_2O_3 .... < 5 %

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