**Acidic**

**Bauxite**

- **Sources:** Austria, Brazil, China, Russia, Mexico, N. Korea, Norway, S. Africa, Turkey.
- **Production:** China, Brazil, India, Japan, US, UK, Germany.
- **Refractory grades:** Aluminosilicate, silicon nitride in the batch composition. Fused SiO₂ and premium qualities to 1,700°C, plus good corrosion resistance to acid.
- **Hardness/S.G.:** Silica
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Refrigeration, heat exchangers, glass melting furnace, steel ladle, municipal waste incinerator, glass furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Calcined Bauxite**

- **Sources:** Brazil, China, India, Japan, Germany, France, Italy, USA, UK.
- **Production:** 100,000 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Amethystine**

- **Sources:** Brazil, China, Germany, India, Japan, UK, USA.
- **Production:** 100,000 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Blazeing Bauxite**

- **Sources:** Australia, Brazil, China, Germany, India, Italy, Japan, Russia, Poland, South Africa.
- **Production:** 500-8,500 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Pumice**

- **Sources:** Australia, Brazil, China, Russia, Mexico, N. Korea, Norway, S. Africa, Turkey.
- **Production:** China, Brazil, India, Japan, US, UK, Germany.
- **Refractory grades:** Aluminosilicate, silicon nitride in the batch composition. Fused SiO₂ and premium qualities to 1,700°C, plus good corrosion resistance to acid.
- **Hardness/S.G.:** Silica
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Refrigeration, heat exchangers, glass melting furnace, steel ladle, municipal waste incinerator, glass furnace, glass melting furnace, glass melting furnace, glass melting furnace.

** LOW ALUMINA**

**Kardite**

- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Karnite**

- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Kardite + Bauxite**

- **Sources:** China, Brazil, India, Japan, Germany, France, Italy, USA, UK.
- **Production:** 100,000 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Spinell**

- **Source:** Austria, Brazil, China, Germany, India, Japan, Russia, Poland, South Africa.
- **Production:** 500-8,500 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Synthetic Alumina**

- **Source:** Brazil, China, India, Japan, Germany, France, Italy, USA, UK.
- **Production:** 100,000 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Synthetic Bauxite**

- **Source:** Brazil, China, India, Japan, Germany, France, Italy, USA, UK.
- **Production:** 100,000 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**SYNTHETIC MULLITE**

- **Source:** Brazil, China, India, Japan, Germany, France, Italy, USA, UK.
- **Production:** 100,000 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.

**Brick vs Monoliths in world market**

- **Chinese refractory product exports, in million tonnes:**
  - Basic: 60%
  - Steel: 20%
  - Refractory: 20%
- **Chinese refractory production, in million tonnes:**
  - Basic: 40%
  - Steel: 30%
  - Refractory: 30%

**Global refractory production 2017 (45 million tonnes)**

- **Sources:** Austria, Brazil, China, Czech Republic, France, Germany, Hungary, India, Italy, Japan, Russia, Poland, South Africa.
- **Production:** 500-8,500 tonnes
- **Refractory grades:** Used in monolithics, insulating firebricks, kiln cars.
- **Hardness/S.G.:** Mohs 7.0/3.1-3.2
- **Formula/Comp.:** Al₂O₃·2SiO₂·2H₂O
- **Applications:** Glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace, glass melting furnace.
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