



Sierra Mineral Holdings 1 Limited,  
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**vimetco**  
smhl



**Bauxite from Sierra Leone**

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## Vision

To build a sustainable mining business that delivers uppermost quartile shareholder returns, while working in a safe, environment friendly and socially responsible manner by contributing to the development of local economy.



## Mission

To become a leading player in the International bauxite market through supply of premium quality bauxite. Exploration of Bauxite in Sierra Leone commenced in the 1920's with low grade bauxites in and around the Freetown Peninsular and Kabala. In 1958, the bauxite potential of the Mokanji and Gbonge Hills was established and the Sierra Leone Ore and Metal Company Limited (Sieromco) was formed as a subsidiary of a Swiss Company, Alusuisse. Sieromco was targeting high grade deposits and most of medium to low grade deposits are left over. In 2010, Sierra Mineral Holdings I Limited (SMHL), a subsidiary of VIMETCO, had taken over all the bauxite operations in this belt and granted a Mining lease ML01/2005 valid till 2032. SMHL has been part of the international industrial and investment group, Vimetco N.V., since July 2008. Historically SMHL concession is known to have four different bauxite deposits – i.e. Kapui river, Mokanji, Gondama and Gbonge deposit. The current bauxite mining operations of SMHL are going on in the Gondama – Gbonge belt and company is actively exploring Mokanji deposit to commence mining soon. Currently SMHL is the only operational bauxite mining company in Sierra Leone.

## Resources

Earlier it was estimated that the SMHL mine has a resource base of approximately 31 million tonnes of bauxite. Later on, satellite imagery study and exploration work revealed many promising bauxite plateaus in this belt. It is estimated that the overall bauxite resources are in the order of 100 million tons in the SMHL concession. SMHL is constantly working through a very aggressive exploration portfolio to update and enhance its current resource and reserve base to ensure sustainable mine production. SMHL currently holds a Proved and Probable level reserves of approximately 23 million tons with estimated current life of mine of 7 to 8 years.

## Bauxite Mining

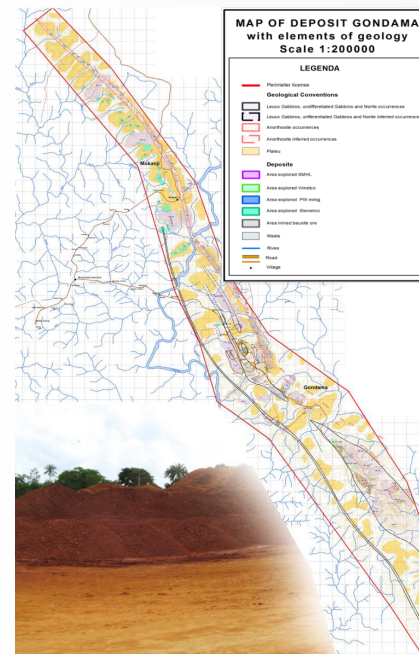
Being a soft and friable bauxite, the ore is normally exploited by simple hydraulic shovel. In the bauxite floor, sometimes parent rocks like Anorthosite and Leuco-Gabbro are exposed as hard and massive rocks. Here bauxite can be easily identified and scooped from the floor. SMHL has most eco-friendly bauxite mining and no explosive is used in winning the ore.

## Wet Beneficiation

The high silica raw bauxite is beneficiated in the washing plant through wet process to eliminate significant amount of deleterious material in the form of Kaolinitic clay, goethite etc. The beneficiation of bauxite significantly enhance the metal content in this ore. Recently SMHL has introduced the state of art technology (attrition scrubbing and desliming) to improve and optimize beneficiation processes in 2019. This is expected to improve the overall bauxite consumption and quality parameters.

## Why Sierra Leone Bauxite?

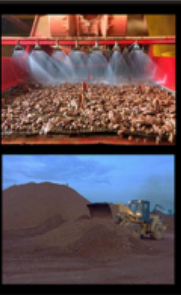
- Tri-hydrate soft gibbsitic bauxite with practically no monohydrate content.
- Bond work index of SMHL bauxite is below 10 kWh /ton requiring low energy in grinding this bauxite in the refinery.
- About 70% grinding washed bauxite is below 10mm size and 99% below 80mm.
- Low total organic content and practically devoid of any impurity
- Bauxite Dryer is used to produce commercial product with less than 8% moisture in rainy season.
- Well homogenized beneficiated bauxite suitable for processing in low-cost, low-temperature alumina refineries.
- Excellent historical track record of high quality washed premium bauxite export.
- Washed bauxite can be considered as one of the best gibbsitic bauxite of the world.



## Facts and Figures

- Run of mines capacity of 3.0 to 3.2 million tons per annum.
- Washed bauxite production capacity of 1.8 to 2.0 million tons per annum.
- Dry bauxite production of 0.6 million ton per annum.
- Average loading rate on the OGV is 8,000 tons per day.
- Commercial bauxite sales of 2.0 to 2.2 million tons per annum starting from 2020.
- Loading at buoy 04 of Sherbro river with draft of 12.5 meter.
- Bauxite delivery terms on FAS/FOB terms and conditions.

| Bauxite Portfolio VIMETCO SMHL   |                  |               |                                   |
|--|------------------|---------------|-----------------------------------|
| SMHL Premium Washed Beneficiated Bauxite   |                  |               |                                   |
| This is premium grade gibbsitic bauxite, suitable for low temperature alumina refineries. The run-off-mine bauxite is crushed and wet screened to produce the washed bauxite product of commercial interest. |                  |               |                                   |
| Chemical Constituent   | Guaranteed Value | Typical Value | Comments                          |
| Total Al <sub>2</sub> O <sub>3</sub>   | Min. 48%         | 49%           |                                   |
| Available Al <sub>2</sub> O <sub>3</sub>   | Min. 44%         | 45%           | Under Low Temperature (145°C)     |
| Monohydrate Alumina  | <0.5%            | 0%            | No Boehmite or Diaspore           |
| Total SiO <sub>2</sub>   | Max. 4.0%        | 3.50%         |                                   |
| Reactive Silica  | Max. 3.6%        | 3.20%         | Under Low Temperature (145°C)     |
| Fe <sub>2</sub> O <sub>3</sub>   | 15-20%           | 16%           |                                   |
| TiO <sub>2</sub>   | 1-1.5%           | 1.10%         |                                   |
| LOI (105 to 1000°C)  | 27-29%           | 28%           |                                   |
| Moisture (105°C)   | Max. 12%         | 11%           | Use of dryer may give 6% moisture |
| Total Organic Carbon   | Max. 0.14%       | 0.13%         |                                   |
| Cr <sub>2</sub> O <sub>3</sub>   | Max. 0.06%       | 0.05%         |                                   |
| CaO  | Max. 0.01%       | 0.01%         |                                   |
| P <sub>2</sub> O <sub>5</sub>  | Max. 0.09%       | 0.05%         |                                   |
| Na <sub>2</sub> O  | Max. 0.08%       | 0.05%         |                                   |
| SO <sub>3</sub>  | Max. 0.25        | 0.24%         |                                   |
| ZrO <sub>2</sub>   | Max. 0.06%       | 0.05%         |                                   |
| ZnO  | Max. 0.003%      | 0.00%         |                                   |
| MnO  | Max. 0.01%       | 0.01%         |                                   |
| V <sub>2</sub> O <sub>5</sub>  | Max. 0.06%       | 0.04%         |                                   |
| K <sub>2</sub> O   | Max. 0.01%       | 0.01%         |                                   |
| MgO  | Max. 0.11%       | 0.07%         |                                   |
| Lump Size  | Max. 100mm       | <80mm         |                                   |



\*Technical specifications, not guaranteed