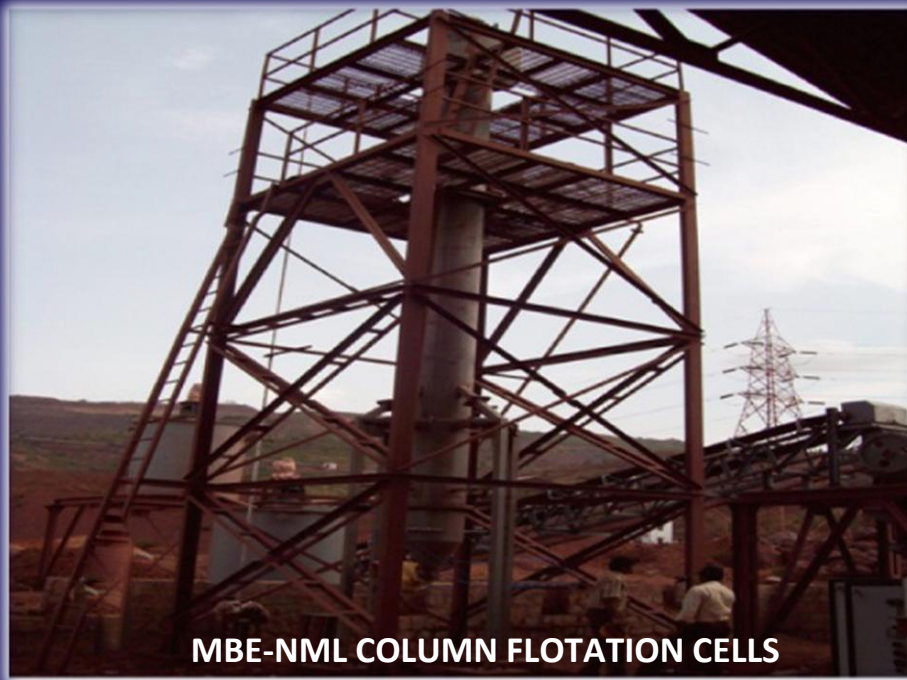


McNally Sayaji Engineering Limited

An ISO 9001:2000 Company

A Subsidiary of McNally Bharat Engineering Company Limited



MBE-NML COLUMN FLOTATION CELLS

At MBE we believe in constantly reinventing ourselves. And in line with this we are always on the lookout for new avenues and opportunities

McNally Sayaji Engineering Limited (MSEL), with factories in Kumardhubi, Asansol, Bangalore and Baroda, is one of the country's leading manufacturers of Crushing, Screening, Milling, Material Handling and other heavy equipment, serving the core sectors of the economy. These sectors include Coal, Mining and Mineral Processing, Power, Steel, Ports, Cement, Aluminum and Non-Ferrous Metals.

The manufacturing units have ISO 9000 certification.

We have marketing and branch offices at Kolkata, Baroda, Mumbai, Kumardhubi, Bangalore, Chennai,

Secundrabad, Cochin, Nagpur, Vizag and Vijaywada. This makes us capable of comprehensive customer support at all times.

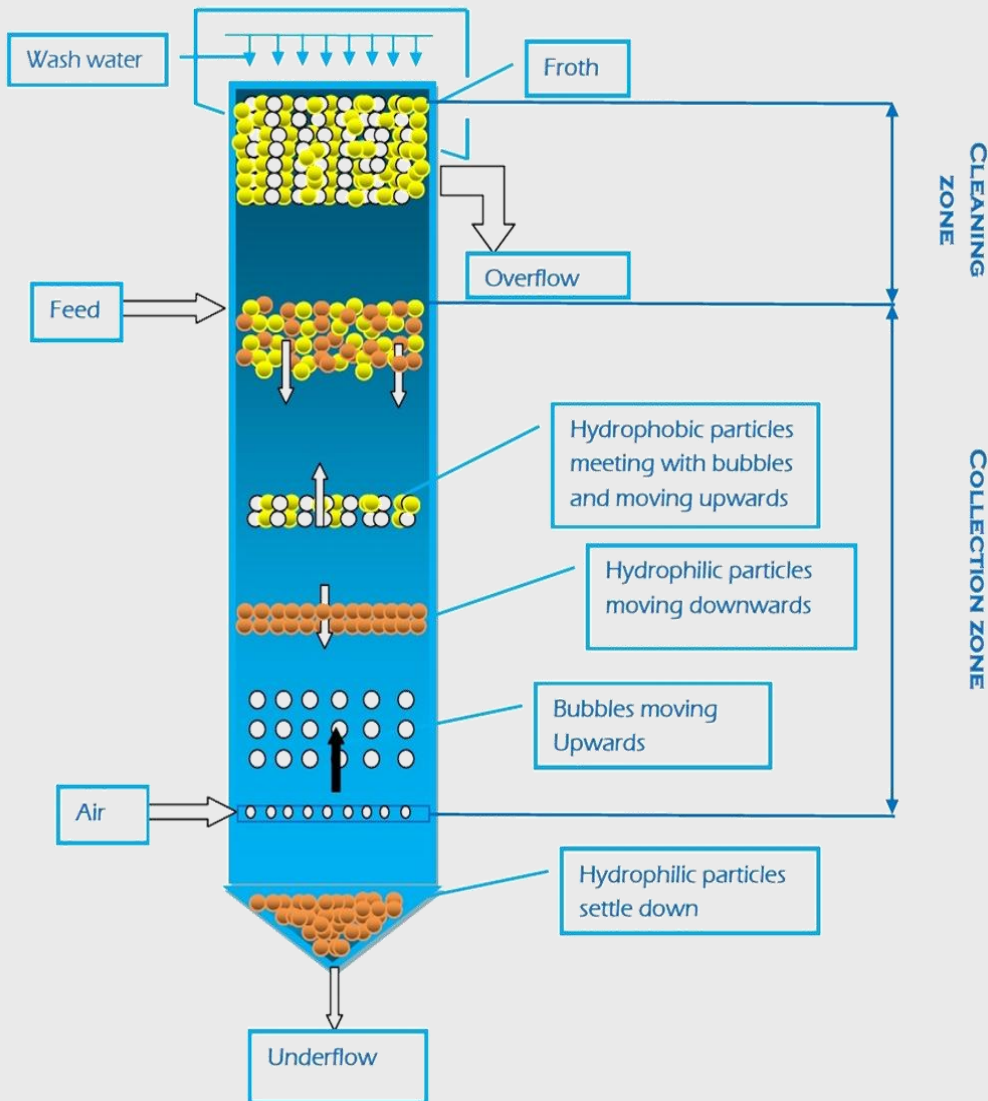
MSEL has inducted technology over the years through strategic alliances and developed focused R&D and Design & Development teams, who offer optimum and cost effective solutions to meet customer needs



MBE-NML Column Flotation

National Metallurgical laboratory is one of the renowned laboratories in India dedicated for continuous research and development in the field of Metallurgy and Mineral beneficiation. We are proud to be their partners in the Journey of building column Flotation cell. After successful lab, pilot scale testing and various commercial scale installations, we introduce MBE-NML Column Flotation cells to the world of processing industries.

Column Flotation in Operation



The basic Success of any Flotation cell lies in the fact that the bubbles meet hydrophobic particles of the feed and carry them to overflow. For this to happen it is always better to create more no of bubbles and also of finer size and that's what column Flotation does.

The conditioned feed enters the column at about two thirds height. The unique sparger system specially designed by NML, installed at the bottom generates bubbles with sufficient kinetic energy & of finer size so as to trap all the hydrophobic particles. The design of column Flotation ensures that there is enough time for the particles to come in contact with the bubbles and carry them to the overflow. The hydrophilic particles settle down at the bottom which is discharged.

The mineralized bubbles reach the upper portion of the column, i.e. cleaning zone, they encounter a blanket of wash water which sweeps away gangue and slurry water entrapped in the froth.

| Factor | Mechanical Flotation | Column Flotation |
|---------------------------------------|----------------------|------------------|
| Grade & Recovery | ↓ | ↑ |
| Moving Parts | ↑ | ↓ |
| Power Consumption | ↑ | ↓ |
| Recovery of finer Particles | ↓ | ↑ |
| Throughput | ↑ | ↓ |
| Floor Space Required | ↑ | ↓ |
| Capital cost Involved | ↑ | ↓ |
| Operation & Maintenance cost involved | ↑ | ↓ |

Salient Features of MBE-NML Column cells

- Unique sparging System designed by NML ensures proper size and distribution of bubbles
- The complete Equipment requires very less maintenance because of less moving parts
- The sparging system is made of inert material which is sturdy & ensures resistant to abrasion and PH.
- The operation is completely automated with Superior control over operating variables

MBE-NML Column cells installed

| Company & place | Scale | Specs | Application | Results |
|--------------------------------------------------------|-------------------------------|----------------|------------------------------------------|-------------------------------------------------------------------------|
| Bharath Gold Mines Ltd, KGF | Semi-commercial | 0.5Mdia | Gold concentrate | 60-70ppm of gold concentrate achieved Vs 10ppm achieved by conventional |
| Gujarat Mineral Development Corporation Ltd, Ahmedabad | Semi-commercial | 0.5Mdia | Fluorspar Beneficiation | Better Grades and Recoveries achieved |
| RBSSN, Hospet | Semi-commercial / Pilot scale | 0.5 M Diameter | Iron ore beneficiation | Recovery of 85-90% |
| Indian Rare Earths Ltd., Chavara | Semi-commercial | 1.3Mdia | Sillimanite Flotation | Concentrates above 98% purity and recovery of 90% were achieved |
| Indian Rare Earths Limited, Chatarpur | Commercial | 1.3Mdia | Sillimanite Flotation | Column Produced excellent Metallurgical Results |
| Calpro Mineral Technologies India Pvt Ltd. | Commercial | 1.2Mdia | Calcium Beneficiation (poultry industry) | Good recovery and grade with less impurities |
| Andhra Barite Corporation Limited, Near Tirupati | Commercial | 2.5 M Diameter | Barite beneficiation | Under commissioning |

Services offered by MBE for Column Flotation Cells

- Slurry sample testing to study the Feasibility of Column Flotation cell
- Pilot scale Column Flotation cell tests
- Design, Fabrication, supply and Erection and Commissioning of Commercial Scale Column Flotation Cells circuit on turnkey basis
- After sales service which involves supply of spares as OEM



Sillimanite Flotation at Indian Rare Earths Limited, Orissa



Limestone Reverse Flotation at CALPRO, Salem

McNally Sayaji Engineering Company Limited

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Crusher | **Screens** | **Mills** | **Feeders** | **Conveyors** | **Port Cranes** | **Stacker Reclaimer** | **Wagon Tippler** | **Slurry Pump** | **Thickener** | **Pressure Vessels** | **Equipments for Steel, Cement, Power & Non Ferrous Metals**