**LITHIUM TITANATE**

<table>
<thead>
<tr>
<th></th>
<th>Cost (Lakh)</th>
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<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td></td>
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<tr>
<td><strong>Plant and machinery cost:</strong></td>
<td>0.00</td>
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<tr>
<td><strong>Working Capital:</strong></td>
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</tr>
<tr>
<td><strong>Rate of return (ROR):</strong></td>
<td>0.01 %</td>
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<td><strong>Break Even Point (BEP):</strong></td>
<td>0.00 %</td>
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<td><strong>TCI:</strong></td>
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<tr>
<td><strong>Cost of Project:</strong></td>
<td>0.00</td>
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Product Profile: Lithium titanate (full name lithium metatitanate) is a compound containing lithium and titanium. It is an off-white powder at room temperature and has the chemical formula Li₂TiO₃. It is the anode component of the fast recharging Lithium-titanate battery. It is also used as an additive in porcelain enamels and ceramic insulating bodies based on titanates. It is preferred as a flux due to its stability.

Product characteristics:
- **Formula**: Li₂TiO₃
- **Name**: Lithium Metatitanate
- **Description**: Off-white coloured powder
- **Solubility in H₂O**: Insoluble

**Applications**
- Lithium titanate is considered to be one of the most prospective materials for use in the anodes of rechargeable lithium ion and lithium polymer cells. Another advantage of Li₄Ti₅O₁₂ is that it has a flat discharge curve. A lithium titanate battery is a modified lithium-ion battery that uses lithium-titanate nanocrystals on the surface of its anode instead of carbon. This gives the anode a surface area of about 100 square meters per gram, compared with 3 square meters per gram for carbon, allowing electrons to enter and leave the anode quickly. This makes fast recharging possible and provides high currents when needed.

**Production Process**
A process is provided for making lithium titanate of closely controlled particle size in the range 5 nm to 2000 nm. The process includes re-firing lithium titanate under controlled conditions so that crystallites of the desired particle size are grown. The lithium titanate may be derived from any suitable source. A suitable source of lithium titanate can be from a process that includes evaporation of a blend that contains lithium and titanium to form a mixture containing lithium and titanium compounds that are subsequently calcined to form lithium titanate. The blend of titanium and lithium may be derived from a variety of titanium and lithium precursor materials. A lithium titanate is formed by mixing lithium carbonate powder or lithium hydroxide powder with titanium oxide followed by preparing a mixed slurry of titanium compound powder and a solution containing lithium, followed by depositing a lithium compound by spray-drying.

**Market Scenario**
The Lithium Ion battery market is poised to play a major role in the emerging cleantech economy. Lithium prices are relatively low and the cost of recycling a battery significantly higher than the sum value of its components, the infrastructure and conditions required to ensure widespread lithium ion battery recycling are still far from established. Currently, there is little economic sense to recycle lithium-ion (Li-ion) batteries. However, if the number of electric vehicles (EVs) and their associated battery packs increase in the long term, recycling and reuse will help validate the tag, green car.

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