AN OVER VIEW OF ALUMINUM SCRAP/CHIP RECYCLING PROCESS PLANT LAYOUT

Scrap Recycling Machinery Required

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Type Of Machinery</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scrap Shredding Machine</td>
</tr>
<tr>
<td>2</td>
<td>Shredded Scrap Charging Hopper with Flow Control Lever.</td>
</tr>
<tr>
<td>3</td>
<td>Stair Conveyor associated with VFD Drive.</td>
</tr>
<tr>
<td>4</td>
<td>Centrifuge unit Machine (Optional) for Chip recycling only.</td>
</tr>
<tr>
<td>5</td>
<td>Magnetic Separator Machine.</td>
</tr>
<tr>
<td>6</td>
<td>Decoating Dryer Machine.</td>
</tr>
<tr>
<td>7</td>
<td>After Burn Chamber Heat Generator Machine for decoater.</td>
</tr>
<tr>
<td>8</td>
<td>Vibrator Feeder Machine</td>
</tr>
<tr>
<td>9</td>
<td>Side wall Furnaces with Three Chambers.</td>
</tr>
<tr>
<td>10</td>
<td>Vortex Pump / Scrap Eater Machine.</td>
</tr>
<tr>
<td>11</td>
<td>2ND Tilting Furnace for Making Various Aluminium Alloys Connected through Launder with Side wall Furnace.</td>
</tr>
<tr>
<td>12</td>
<td>Launder systems To Carry the Molten Metal.</td>
</tr>
<tr>
<td>13</td>
<td>Caster Machine for Manufacturing Ingots With VFD Drive.</td>
</tr>
<tr>
<td>14</td>
<td>Water Cooling systems for Ingots.</td>
</tr>
<tr>
<td>15</td>
<td>C.I. Mold</td>
</tr>
<tr>
<td>16</td>
<td>Weighing Balance</td>
</tr>
<tr>
<td>17</td>
<td>Forklift &amp; Over Head Crane suitable capacity</td>
</tr>
<tr>
<td>18</td>
<td>Pollution Control Water Scrubber.</td>
</tr>
</tbody>
</table>
WHY RECYCLING OF ALUMINIUM SCRAP IS NECESSARY ?

- On the list of the BEST TECHNOLOGIES available on the market for various types of light gauge scrap melting.
- With this all material will go into the BEF WELL Melting Furnace without shredding and DC coating thereafter.
- In-situ well FURNACE Liquid Metal Molten is Circulated within the Chamber by Vortex Pump & specially designed and Finned Duty Motor that have high impact on the METAL RECUP YIELD.

- By using any dry material substance through the vortex, Aluminium metal oxidation is minimized regardless of scrap type.
- Waste Recovery value will be increased are typically 94% max. And 95% to 97% and less, depending on the type of Al scrap.
- Impurities present in liquid metal after melting in Vortex Pump, will decrease to less than 0.02%.

For maximum recovery, set flux must be required.

ALUMINIUM SCRAP/CHIPS RECYCLING BENEFITS

Environment Benefits From Aluminium Scrap Recycling

- Scrap can be recycled for Various Industrial Applications.
- No Pollution during the process.
- Very less energy required to get Recycled Aluminium scrap.
- Very less man power required to operate the plant.
- Fully automation process controlled with advanced electronic displays with data recording systems.
- Clean environment Green Environment.

Commercial Benefits From Aluminium Scrap Recycling Plant

- Plant loss process to operation.
- High metal recovery rates.
- Minimized metal protection.
- Designed for continuous, automated operation.
- Low operating cost.
- Low capital investment.
- Low maintenance.
- Easy installation.
- Can recycle all existing furnaces.
- Ease to be controlled.
- In-house recycling of machining chips.
- No dependency on Alloy supplier.
- Additional melting capacity.
- Rapid return on the investment.
- Impact on factory environment.
- Improving productivity.
- Compact layout.
- Can be retrofit to existing furnaces.
- No extensions or modifications required.
- Can be installed anywhere.
- Alternate alloy melting.
- High metal recovery rates.
- Man less process / operation.
- Scrap can be reutilized for Various Industrial Applications.
- Very less energy required to get Recycled Aluminium scrap.
- Very less man power required to operate the plant.
- Fully automation process controlled with advanced electronic displays with data recording systems.
- Clean environment Green Environment.

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- Very less energy required to get Recycled Aluminium scrap.
- Very less man power required to operate the plant.
- Fully automation process controlled with advanced electronic displays with data recording systems.
- Clean environment Green Environment.
- Planned production.
- High temperature efficiency.
- Temperature Uniformity up to ± 5ºC.
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- Network friendly systems.
- Power saving.
- Low maintenance.
- Easy installation.
- Maintenance free operation.
- Compact in size.
- Low installation area.
- Easy installation.
- Maintenance free operation.
- Compact in size.
- Low installation area.
- Vortex Pump Create Flow in molten metal to REDUCE oxidation melt loss.

Flow pattern at 600 GPH flow rate

MIT: Industrial Ovens, Furnaces & Aluminium Scrap Recycling Plant

Recycling for Better Environment

Established in 1990 with Designing capability having work force of over 500 installations

4 Shred, Decoat & Charge into Side well Furnace

(Shrink to Center)

TYPICAL DIFFERENT MELTING PROCESS WITH MELT LOSSES

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Method of Recycling</th>
<th>Overall Recovery</th>
<th>UBC Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Direct Charge into Typical Rotary Furnace</td>
<td>70-80%</td>
<td>70-80%</td>
</tr>
<tr>
<td>2</td>
<td>Direct Charge into Rotary Salt Furnace</td>
<td>75-83%</td>
<td>75-83%</td>
</tr>
<tr>
<td>3</td>
<td>Shred, Decoat &amp; Charge into Side well Furnace with Vortex Pump</td>
<td>95-96%</td>
<td>95-96%</td>
</tr>
</tbody>
</table>

VORTEX PUMP MINIMIZES OXIDATION MELT LOSSES

MELT LOSSES—We assume that the UBC cans contain approximately 7% coating, 1% water and 1% tramp material. This equals to a metal loss of 4-6%. Out of all the metal is lost in the furnace, there will be losses due to fines generation within the shredding process.

TABLE SHOWS MELT LOSSES FOR DECORATED & NON-DECORATED MATERIALS

<table>
<thead>
<tr>
<th>Scrap Type</th>
<th>Metal Loss (No Decoating)</th>
<th>Metal Loss (With Decoating)</th>
<th>Metal Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used Beverage Cans</td>
<td>Minimum 20-24 %</td>
<td>Less Than 8.5%</td>
<td>94%</td>
</tr>
</tbody>
</table>

Above table gives the results of melting tests carried out on different materials. The first test was done by direct charging the scrap into a standard reverberatory furnace without decoating. The second test was done on scrap that had been shredded and then after decoated. You can use either UBC Shredded Chips or Turning Chips.