Lightweight Mixed Treatment Soil Method

The Lightweight Mixed Treatment Soil Method uses surplus soil from the construction site and mixed with water, solidifier and air bubbles or foamed beads to produce lightweight and stable material for reclamation or backfill of a structure. Such materials as SGM lightweight soil, high-grade soil and FCB are available for selection according to uses.

★ Density can be adjusted ranging from about 0.5 to 1.3 g/cm³ by controlling the quantity of air bubble or foamed beads to be mixed.

★ The strength can be controlled as required when the amount of solidifier to be added is changed. It is recommendable to set the unconfined compressive strength at qu=100~500 kN/m², to a range allowing the material to be handled as soil.

★ A suitable fluidity can be obtained by adjusting the moisture content. Conveying by pumping is possible and the material can be placed in any form in air and under water. Compaction is not necessary.

**Working Procedure**
- Conveying of construction surplus soil to the site
- Releasing of mud
- Adjusting of Moisture Content
- Kneading
- Pumping
- Placing

**Equipment to Be Used**
- Water
- Solidifier
- Air Bubble or Foamed Beads

**Completed Projects Record**

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Duration</th>
<th>Project Site</th>
<th>Client</th>
<th>Objective</th>
<th>Treated Soil Volume</th>
<th>Type of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kannon 2nd Tidal Embankment Work</td>
<td>90.2</td>
<td>Hiroshima</td>
<td>Construction Ministry</td>
<td>To prevent settlement of fill area</td>
<td>880m³</td>
<td>Foamed beads mixed treatment soil</td>
</tr>
<tr>
<td>Shimotsurata Bridge Replacement Work</td>
<td>92.2</td>
<td>Miyagi</td>
<td>Miyagi Prefecture</td>
<td>Reduction of earth pressure/settlement on the back of abutment</td>
<td>1,630m³</td>
<td>Foamed beads mixed treatment soil</td>
</tr>
<tr>
<td>Tokyo Airport Surrounding Road Work</td>
<td>96.5~96.6</td>
<td>Tokyo</td>
<td>Transport Ministry</td>
<td>To reduce earth pressure on the back of revetment</td>
<td>1,940m³</td>
<td>Air bubble mixed treated soil</td>
</tr>
<tr>
<td>Tokyo Airport Runway Ground Improvement Work</td>
<td>98.1~98.12</td>
<td>Tokyo</td>
<td>Transport Ministry</td>
<td>To reduce load on the top of tunnel</td>
<td>32,100m³</td>
<td>Air bubble mixed treated soil</td>
</tr>
<tr>
<td>Oi Wharf New 4 Berth Access Revetment Reinforcement Work</td>
<td>00.12~01.2</td>
<td>Tokyo</td>
<td>Tokyo Port Wharf Corporation</td>
<td>To reduce earth pressure on the back of quaywall</td>
<td>9,240m³</td>
<td>Air bubble mixed treated soil</td>
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</tbody>
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