Coagulant
Powerful and Quick
Water Clarification
Powder
Powerful and Quick Coagulant for Drain Water

Muddy Drain Water

10 seconds after shake

15 Seconds
Characteristics

- Water Pure Le is made of natural inorganic materials for most environmental safe coagulant.
- It has great coagulant power.
- Water Pure Le is simple to use.
- Certified environmental safe coagulant by Japanese Government.
- Cleans drain water by quick coagulant reaction and subsidence.
- The quick action makes the treatment system simple and compact (cost effectiveness)
- Water Pure Le does not plug up filtering mesh because non-sticky low viscosity congregates is made.
Water Pure Le Characteristics

- Powerful coagulant
  Small amount of Water Pure Le is required for large waste water. (Low running cost)

- Shortest coagulant time
  This require a small equipment for large amount of waste water. (Low initial equipment cost)

- Short congregate forming time
  Since congregate forms in a short time, water filtering is simple. The congregate is low viscosity, so that dehydration can be achieved in short time. (Cost-effective)
Chemical Compositions of Water Pure Le
Great Cleaning Power for Soil Drain Water

1. Soil Drain Water
2. Add and Stir
3. Coagulant
4. Congregate

23 Seconds
Coagulant Mechanism

Congregates can be used for various purposes such as fertilizers, recycles, etc.
Coagulation and Cohesion can be performed by Water Pure Le in one step!

Coagulant Mechanism by Other Types

Step 1: Coagulation

Step 2: Cohesion

Water Pure Le can perform these two processes by one step!!
Coagulant Mechanism by Water Pure Le

Colloid Particles

Coagulation (Neutrizing + Absorption +Combining)

Suspended Particles

Absorption Combining

Small Flukes

Large Flukes

Water Pure Le (One Process)
H2O PURE LE

Treated Water Analysis for Soil Drain Water

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Test Result</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6.5</td>
<td>JIS K0102 12.1</td>
</tr>
<tr>
<td>Chemical Oxygen Dissolved (COD)</td>
<td>1.9 ppm</td>
<td>JIS K0102 17</td>
</tr>
<tr>
<td>Biochemical Oxygen Dissolved (BOD)</td>
<td>Less than 0.5 ppm</td>
<td>JIS K0102 21</td>
</tr>
<tr>
<td>Suspended Material (SS)</td>
<td>Less than 5.0 ppm</td>
<td>GFP Filtering Method</td>
</tr>
</tbody>
</table>
Required Amount for Soil Drain Water

The graph shows the concentration of water pure Le (ppm) in relation to the soil concentration (ppm). The concentration of water pure Le increases as the soil concentration increases.
Water Based Paint Drain Water

1. Paint Drain Water
2. Add and Stir
3. Coagulant
4. Congregate
## Treated Water Analysis for Paint Drain Water

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Test Result</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.4</td>
<td>JIS K0102 12.1</td>
</tr>
<tr>
<td>Chemical Oxygen Dissolved (COD)</td>
<td>29 ppm</td>
<td>JIS K0102 17</td>
</tr>
<tr>
<td>Biochemical Oxygen Dissolved (BOD)</td>
<td>Less than 2.4 ppm</td>
<td>JIS K0102 21</td>
</tr>
<tr>
<td>Suspended Material (SS)</td>
<td>Less than 5.0 ppm</td>
<td>GFP Filtering Method</td>
</tr>
</tbody>
</table>
Water Pure Le for Paint Drain Water
Recycle of Paint Flukes

Dry coagulant paint material can be used as heat enhancement for furnace. This eliminates toxic dioxin in the exhausted gas.
Alga Water Treatment

Alga (Green) Water
10 Seconds after Shake
15 Seconds

0.1 g to 2 g for 1 litter of Alga Water
Treatment of Colloidal Sediment (Sludge)
Treatment of Colloidal Sediment (Sludge)

Can be transported by trucks for disposal.
It can be used as fertilizer after testes.
Treatment of Colloidal Sediment (Sludge)

1. Water (left) and Sludge (right)
2. Add water to sludge
3. Mixing sludge and water
4. Sludge containing high water (Difficult to handle)
5. Add Water Pure Le
6. Mixing
Treatment of Colloidal Sediment (Sludge)

7. Solidified sludge
8. Take in hand, (no sticky)
9. The solidified sludge does not dissolve in water any more.
## Comparison with Other Types of Sludge Treatment

<table>
<thead>
<tr>
<th></th>
<th>Water Pure Le</th>
<th>Cement Type</th>
<th>Lime Type</th>
<th>Organic High Molecular Type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pH when mixed</strong></td>
<td>Neutral</td>
<td>High alkaline</td>
<td>High alkaline</td>
<td>Neutral</td>
</tr>
<tr>
<td><strong>Strength after mixed</strong></td>
<td>Immediately strength and maintain</td>
<td>Long time for development</td>
<td>Long time for development</td>
<td>Medium time for development</td>
</tr>
<tr>
<td><strong>Removal by digging up</strong></td>
<td>Possible</td>
<td>Not possible</td>
<td>Possible</td>
<td>Possible</td>
</tr>
<tr>
<td><strong>Heat Generation</strong></td>
<td>None</td>
<td>Small</td>
<td>High</td>
<td>None</td>
</tr>
<tr>
<td><strong>Water Permeability</strong></td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Water retentivity</strong></td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Vegetation</strong></td>
<td>Great</td>
<td>Not possible</td>
<td>Not possible</td>
<td>Not possible due to rot of root</td>
</tr>
<tr>
<td><strong>Recycle of soil</strong></td>
<td>Possible</td>
<td>Not suitable</td>
<td>Not suitable</td>
<td>Not possible</td>
</tr>
</tbody>
</table>
Benefits to Farmer Industry

1. Removal of odors from animal wastes.
2. Water from animal wastes can be recycled for cleaning or washing water.
3. The final product can be used as fertilizer.
4. Reduction of medicine (15 to 20%) to pigs, resulting in faster weight gains (2 – 3%) and the reduction of production time (10%).
5. Reduction of death rate for baby pigs.
Environmental Benefits by Water Pure Le

- Reduction of Sewage Treatment Process:
  - Reduction of CO$_2$, Cost Reduction

- Reduction of Water Usage
  - Save Water in Sewage Water Treatment Process

- Recycle of Drainage Water
  - Save Water in Sewage Water Treatment Process

- Reduction of SS and COD from Sewage Water
  - Safety to Human Health
Environmental Benefits by Water Pure Le

- Recycle of Flukes
  
  **Save Resources**

- Recycle of Drainage Water
  
  **Save Water in Sewage Water Treatment Process**

- Recycle of Livestock Excrement
  
  **Save Time and Money**

  *(it can be turned to fertilizer in a half time and eliminate smell)*
## Food Drain Water

<table>
<thead>
<tr>
<th>Drain Water</th>
<th>Suspended Substance (mg/litter)</th>
<th>BODY (mg/litter)</th>
<th>COD (mg/litter)</th>
<th>Oil n-Hexane (mg/litter)</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mackerel (Fish) Factory</td>
<td>4,000 → 62</td>
<td>7,220 → 186</td>
<td>3,320 → 152</td>
<td>11,000 → &lt; 1.0</td>
<td>98.5%</td>
</tr>
<tr>
<td></td>
<td>98.5%</td>
<td>97.4%</td>
<td>95.4%</td>
<td>9.99%</td>
<td></td>
</tr>
<tr>
<td>Dried Fish Factory</td>
<td>320 → 130</td>
<td>1,440 → 310</td>
<td>369 → 298</td>
<td>710 → 1.4</td>
<td>59.4%</td>
</tr>
<tr>
<td></td>
<td>59.4%</td>
<td>78.5%</td>
<td>24.8%</td>
<td>99.8%</td>
<td></td>
</tr>
<tr>
<td>Kitchen Drain Water</td>
<td>460 → 160</td>
<td>900 → 230</td>
<td>302 → 152</td>
<td>180 → 6.3</td>
<td>44 → 5.5</td>
</tr>
<tr>
<td></td>
<td>65.2%</td>
<td>74.4%</td>
<td>58.9%</td>
<td>96.5%</td>
<td></td>
</tr>
</tbody>
</table>
## Water Pure Le ST-200 Performance

### Industry Drain Water

<table>
<thead>
<tr>
<th>Drain Water</th>
<th>Suspended Substance (mg/litter)</th>
<th>BOD (mg/litter)</th>
<th>COD (mg/litter)</th>
<th>Oil n-Hexane (mg/litter)</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens Polishing Factory</td>
<td>625 → 11.5</td>
<td>1.4 → 0.01</td>
<td>0.45 → 0.02</td>
<td></td>
<td>6.4 → 7.4</td>
</tr>
<tr>
<td></td>
<td>98.2%</td>
<td>99.3%</td>
<td>95.6%</td>
<td>9.99%</td>
<td></td>
</tr>
<tr>
<td>Barrel Grinding Factory</td>
<td>1370 → 145.0</td>
<td></td>
<td>202 → 4.7</td>
<td></td>
<td>6.8 → 7.2</td>
</tr>
<tr>
<td></td>
<td>96.7%</td>
<td>97.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compressor Drain Water</td>
<td></td>
<td>287 → 23.3</td>
<td></td>
<td></td>
<td>6.3 → 6.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91.9%</td>
<td></td>
</tr>
<tr>
<td>Metal Cutting Factory</td>
<td>463 → 6.4</td>
<td>1.790 → 1.5</td>
<td></td>
<td></td>
<td>6.5 → 7.3</td>
</tr>
<tr>
<td></td>
<td>98.6%</td>
<td></td>
<td></td>
<td>99.9%</td>
<td></td>
</tr>
</tbody>
</table>
Applications (Industry)

- Water based paint waste water
- Metal ion waste water
- Painting booth waste water
- Heavy metal waste water
- Biotechnology ethanol waste water
- Metal plating waste water
- Ceramic grinding waste water
- Dyestuff and pigments waste water
- Oil mixed waste water
- Bond emulsion waste water
- Incinerator washing drain water
- Print wiring board resist waste water
- Power plant cooling water
- Incinerator high pressure washing waste water
- Compressor drain water
- Floor wax removing agent waste water
- Building maintenance waste water
- Drainage waste water
- Septic tank muddy water
- Cigarette filter washing solution
- Cosmetic factory drain water
Applications (Food Industry)

- Food processing factory waste water
- Starch waste water
- Meat processing factory waste water
- Food washing water
- Septic tank muddy water
- Vegetables washing water
- Fish processing factory waste water
- Brewing waste water
- Grease trap waste water
- Others

- Pet bottle washing water
- Vegetable washing water
- Pig and chicken factories
- Others
Applications (Construction Industry)

- Construction waste water
- Cement concrete waste water
- Boring muddy water
- Stone quarry muddy water
- Bentonite washing water
- Tunnel construction waste water
- Paint drain water
- Others
### Applications (Natural Environment)

- Lakes, rivers, ponds, marsh, reservoirs, etc.
- Boring muddy water
- Stone quarry muddy water
- Bentonite washing water
- Others

<table>
<thead>
<tr>
<th>Millrace</th>
<th>Adjustment Pond</th>
<th>Algae Water</th>
<th>River</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swamp</td>
<td>Fish preserve</td>
<td>Water Reservoir</td>
<td>River</td>
</tr>
</tbody>
</table>

![Images of various natural environments](image1.png)