**General Description**

EPOKUKDO YDPN-638 has advantageous characteristics of good adhesion strength, excellent heat and chemical resistance because of its multi-functional groups in one molecule fully cross-linked. Therefore, it has excellent physical properties in addition to the basic reactivity of general Epoxy Resin.

**Structure**

```
  O
 /   \
CH2   CH2
|     |
O     O
|     |
CH2   CH2
\   /     \
CH2   CH2
```

\[ n = 1.6 \]

**Resin Properties**

<table>
<thead>
<tr>
<th>Item</th>
<th>YDPN-638</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEW (g/eq)</td>
<td>170-190</td>
<td>KD-AS-001</td>
</tr>
<tr>
<td>Solution Viscosity(^1)</td>
<td>H-K</td>
<td>KD-AS-007</td>
</tr>
<tr>
<td>Color (G)</td>
<td>3.0 max.</td>
<td>KD-AS-025</td>
</tr>
</tbody>
</table>

\(^1\) Gardner Holdt Method, Butyl Carbitol NV 60% Solution

**Main Uses**

1. Heat resistant adhesives
2. Composite for sports goods, yacht, pipes, automobile parts, defense industry and so forth.
3. Heat resistant Coatings
4. Structural and electrical laminates
5. Civil engineering & construction
6. Casting & molding
7. Raw material for Epoxy acrylate PCB inks

**The relationship between viscosity & temperature**

**Comparison of Reactivity**

The reactivity cured with MeTHPA (Gel Time)

The reactivity cured with DDM (Gel Time)
The reactivity cured with Dicyandiamide (Gel Time)

Starting Formulation
1. In case of MNA
   - YD-128 / MNA / BDMA = 100 / 80 / 1
   - YDPN-631 / MNA / BDMA = 100 / 88 / 1
   - YDPN-638 / MNA / BDMA = 100 / 83 / 1
     \[(120^\circ C \times 1 \text{hr}) + (150^\circ C \times 3 \text{hr})\]

2. In case of MeTHPA
   - RESIN / MeTHPA / BTEAC = 100 / 90 / 2
     \[(90^\circ C \times 2 \text{hr}) + (150^\circ C \times 4 \text{hr})\]

Thermal Characteristic (Formulation A, B)

<table>
<thead>
<tr>
<th>Hardener</th>
<th>MNA</th>
<th>YD-128</th>
<th>YDPN-631</th>
<th>YDPN-638</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resin T_g(°C)</td>
<td>118.4</td>
<td>122.7</td>
<td>152.1</td>
<td></td>
</tr>
<tr>
<td>Hardener</td>
<td>MeTHPA</td>
<td>YD-128</td>
<td>YDPN-631</td>
<td>YDPN-638</td>
</tr>
<tr>
<td>Resin T_g(°C)</td>
<td>139</td>
<td>146.1</td>
<td>151.8</td>
<td></td>
</tr>
</tbody>
</table>

Physical properties (Formulation A, B)

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>YD-128</th>
<th>YDPN-631</th>
<th>YDPN-638</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td>Kg/cm²</td>
<td>434</td>
<td>297</td>
<td>108</td>
</tr>
<tr>
<td>Compressive Strength</td>
<td>Kg/cm²</td>
<td>1239</td>
<td>1246</td>
<td>817</td>
</tr>
<tr>
<td>Flexural Strength</td>
<td>Kg/cm²</td>
<td>819</td>
<td>681</td>
<td>393</td>
</tr>
<tr>
<td>Lap shear Adhesion Strength</td>
<td>Kg/cm²</td>
<td>130</td>
<td>76</td>
<td>65</td>
</tr>
<tr>
<td>Arc Resistance</td>
<td>KV/mm</td>
<td>18.55</td>
<td>18.2</td>
<td>15.65</td>
</tr>
<tr>
<td>Hardness</td>
<td>Shore D</td>
<td>90</td>
<td>91</td>
<td>91</td>
</tr>
</tbody>
</table>

Storage
Keep dry and cool condition
Keep away from heat sources and direct sunlight

Packaging
D/M of 200 Kg net weight
Can of 20Kg net weight

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