### Advantage of DSA

**Extremely high corrosion resistance with low electrical resistance**
This anode material consists of basically two constituency

1. Precious metal oxide coating on the substrate
   Precious metal oxides, such as iridium oxide and ruthenium oxide, show very high corrosion resistance combined with very low electrical resistance, making it ideal protective coating of anode for heavy duty application

2. Titanium pipe as substrate
   Titanium as substrate provides very ideal bonding with these oxide coating when treated by special propriety methods.

**Environment-friendly material**
Conventional Stainless anode dissolves under use, giving out heavy metals such as Fe, Ni, Cr. DSA on the other hand gives out none of these harmful heavy metals

**Prolong anode membrane life**
Conventional stainless steel anode dissolves and Fe, Ni, Cr metals deposits on the anode membrane surface as oxides, building gradually high electrical resistance. If DSA is used for membrane electrode it releases no such heavy metals oxides and membrane has much longer useful life

**Easy handling**
Weigh only 1/5 compared with Stainless steel anode. It is also mechanically stronger than some ceramic anodes which either break or crack.

### Comparison with SUS316

<table>
<thead>
<tr>
<th></th>
<th>SUS316</th>
<th>PT-DSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>SUS316</td>
<td>Titanium substrate with iridium oxide</td>
</tr>
<tr>
<td>Erosion rate</td>
<td>$5 \sim 200 \times 10^{-5}$ g/C</td>
<td>$1 \sim 10 \times 10^{-8}$ g/C</td>
</tr>
<tr>
<td>Anolyte conductivity</td>
<td>Less than $1000 \mu S/cm$</td>
<td>$1000 \sim 3000 \mu S/cm$</td>
</tr>
<tr>
<td>Heavy metal in anolyte</td>
<td>Cr, Ni, Fe</td>
<td></td>
</tr>
<tr>
<td>Life</td>
<td>$2 \sim 5$ yrs.</td>
<td>$7 \sim 10$ yrs.</td>
</tr>
<tr>
<td>Mechanical strength</td>
<td>Very high</td>
<td>Very high</td>
</tr>
<tr>
<td>Size</td>
<td>48.6Φ · Tube</td>
<td>27.2Φ · Tube</td>
</tr>
</tbody>
</table>

※Life of anode depends on operating condition. The given number should not be taken as guaranteed.
DSA (Dimensionally Stable Anode) for Electro-Coating

**PT-DSA**

### Application

Used as bare electrode

By installing proper ratio of both membrane electrodes and bare electrodes, acid level in the paint can be balanced ideally. If too much of PT-AN (acid removal type) is used the acid level in the tank gets too low. Bare electrode can provide electrical current without removing acid, thus introduction of bare anodes help balance the acid level.

### Use as anode of membrane electrode

With PT-LAN (Low acid removal type) : Prevention of sludge build on the anode surface + acid balancing

With PT-AN (Acid removal type) : Possible to run with very high anolyte concentration to reduce anolyte effluent.

### Versatile anode positioning

Light weight combined with mechanical strength make it possible to install anode in more variety of positioning not possible before.

For coating highly demanding jobs such as car bodies, it is a big advantage to have capability of anodes installing in various positioning so to attain desired E-coat film at various location on the bodies.