



## What is Titanium Anode?

Titanium anode, also known as DSA (Dimensionally Stable Anode), is a new type of electrode material with metal titanium as the substrate and an active coating such as precious metal oxides coated on its surface.

In the field of applied electrochemistry, titanium anode is an electrode material that converts electrical energy into chemical energy and plays a crucial role in applied electrochemistry. Titanium anode has excellent electrochemical properties, including high electrocatalytic activity, low overpotential, and good conductivity. This enables titanium anode to efficiently promote the progress of electrochemical reactions in electrochemical processes, improve reaction efficiency and current density.





Common application fields of titanium anode:



#### I. Chlor-alkali industry

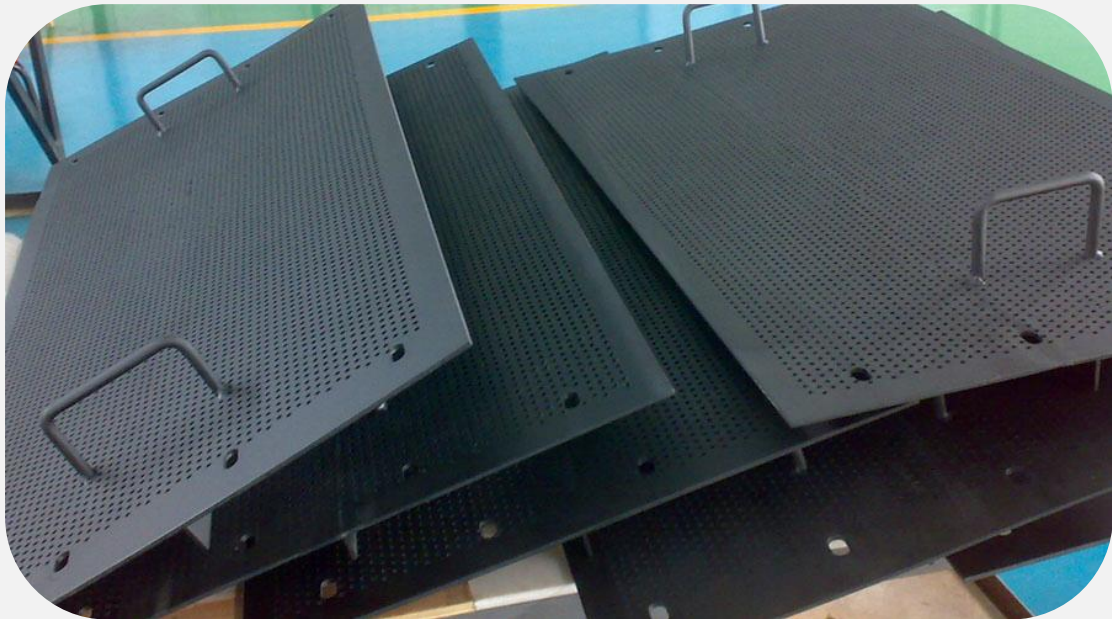
Widely used in traditional diaphragm caustic soda production and ion-exchange membrane caustic soda production.

In this industry, titanium anode is resistant to the corrosion of chlorine gas and alkaline solution, and its service life is significantly longer than that of graphite anode (graphite anode is generally 8 months, while titanium anode can reach more than 6 years). It can work under high current density and improve production efficiency; due to the fine bubbles generated on its surface and rapid detachment, the resistance between electrodes and cell voltage are reduced; it avoids the pollution of electrolyte and cathode products and improves the purity of chlorine gas and the concentration of alkaline solution.

#### II. Electroplating industry



As an insoluble anode in various electroplating processes (such as nickel plating, gold plating, chromium plating, zinc plating, copper plating, etc.). Its surface has a precious metal oxide coating with high electrochemical catalytic performance. The oxygen evolution overpotential is lower than that of traditional lead alloy insoluble anode. It is energy-saving and has high stability and does not pollute the plating solution; it can reduce cell voltage and save power consumption under the same conditions; it has good chemical and electrochemical stability during electroplating and a long service life; the electrode shape can be customized into mesh, plate, strip, tube, etc. according to needs.



### III. Electrolytic extraction of non-ferrous metals

It can remain stable in a complex electrolyte environment, overcome the problem that some traditional electrode materials are easily corroded and dissolved, and can be reused multiple times to reduce production costs;



improve current efficiency and extraction purity.

#### IV. Sewage treatment field

Industrial wastewater treatment (such as cyanide-containing wastewater from electroplating plants, etc.)

It can carry out oxidation-reduction reactions on heavy metal ions and other substances in wastewater to make them form precipitates or be converted into harmless substances; use strong oxidizing substances such as hypochlorite generated by it to decompose organic pollutants.



#### Hospital sewage treatment

It can kill pathogens and other microorganisms in hospital sewage; it can effectively purify sewage.

#### V. Related to environmental protection

Disinfection of domestic water and food utensils

Use its electrochemical characteristics to generate disinfection



components, such as generating hypochlorous acid in water, to disinfect and purify domestic water and ensure the safety of domestic water; used for disinfection of food utensils, it can avoid chemical residues caused by traditional disinfection methods.

#### Treatment of cooling circulating water in power plants

Effectively control the growth of microorganisms and algae in cooling circulating water, reduce scaling and corrosion, and ensure the efficient and stable operation of the cooling circulating water system.

#### Treatment of dyeing and finishing wastewater in woolen mills

Oxidatively degrade organic pollutants such as dyes and auxiliaries in dyeing and finishing wastewater and reduce indicators such as chemical oxygen demand (COD) of wastewater.

#### VI. Electrolytic organic synthesis.

In organic synthesis, it is used as an electrode to provide a specific electrochemical environment to promote reactions to proceed in a more efficient, green, and controllable way and reduce side reactions.

#### VII. Energy storage battery application

As an electrode material in some special battery systems, due to its stability and conductivity and other characteristics, it can optimize battery performance and lifespan to a certain extent.

#### VIII. Cathodic protection

As an auxiliary anode, it forms a circuit with the protected metal structure



to provide electrons for the protected metal and keep the protected metal at a relatively stable potential to avoid or reduce corrosion.

IX. Hydrogen production by electrolysis of water, etc.

As an efficient electrode material, it promotes the water electrolysis reaction and improves the production efficiency and purity of hydrogen.

X. Aluminum foil formation

It provides stable current and electrochemical conditions for forming a high-quality oxide film on the surface of aluminum foil and improves the surface performance and application range of aluminum foil.

XI. Copper foil production machine for electrolytic copper foil and post-treatment of copper foil

It is made by depositing copper on the surface of the cathode roller by electrolysis. It has the advantages of uniform thickness, high surface quality, and good conductivity.

With the continuous development and innovation of the field of applied electrochemistry, titanium anodes are also constantly developing and improving.

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