

Exceload F Electrode Material

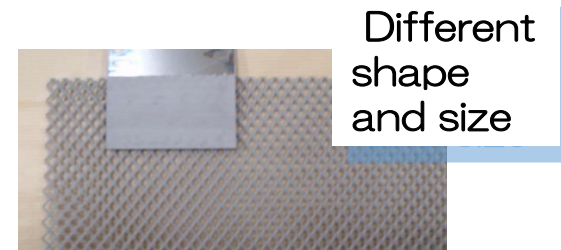
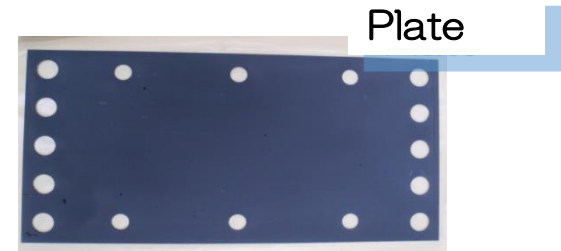
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Exceload Electrode

Exceload electrode consists of a titanium substrate which is coated with platinum group metals oxides

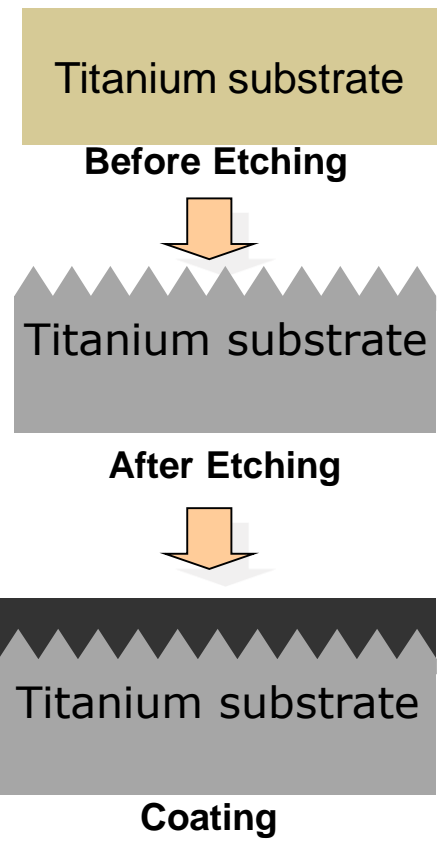
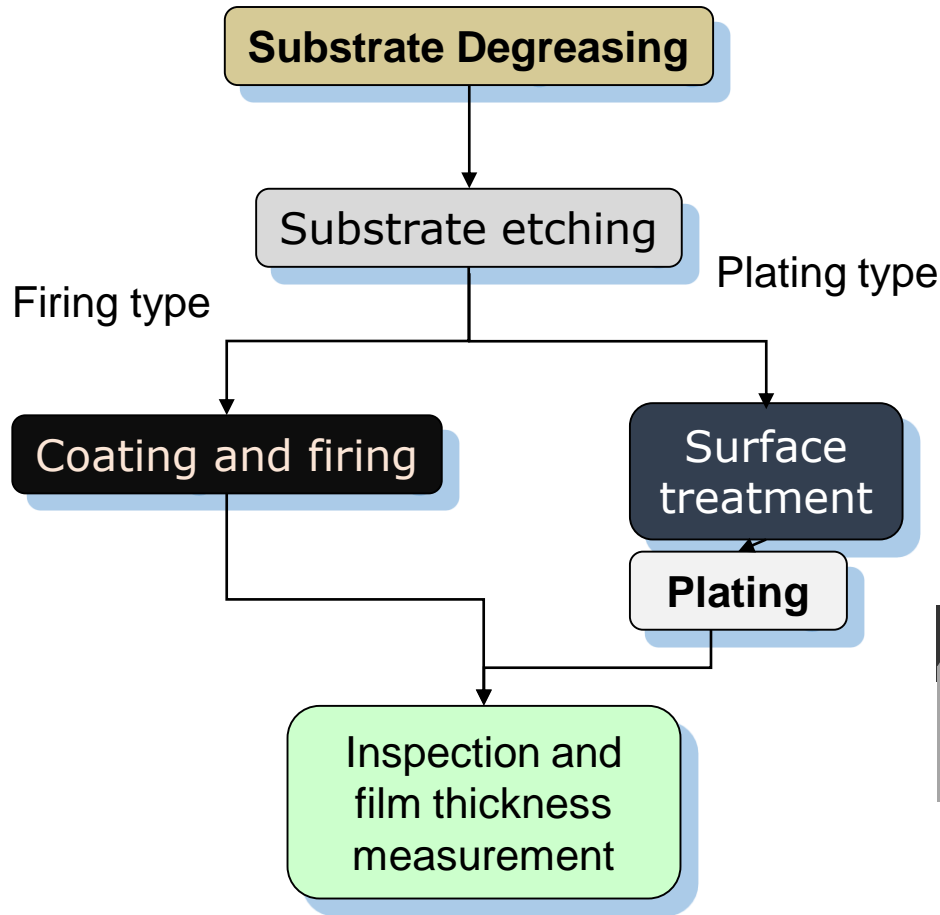
We can design and fabricate to customers required shape and size as shown on the right photo.

We proposed coating specifications based on wide variety of areas and thickness (up to a few μm , $+\text{g}/\text{m}^2$)



Manufacturing Process of Electrode

Confidential



Series of electrode features

Confidential

		Type	Coating	Features	General Application
①	BA・EA	Plating	Platinum	By special interface treatment Improving adhesion Overvoltage Large	High potential oxidation treatment
②	R RN		platinum-iridium complex system	It can correspond to reverse current	Alkaline ionized water apparatus Acidic water
③	B・F		Iridium dioxide system	Low oxygen overvoltage	
④	C	Sintering	Ruthenium complex system	Good chlorine generation efficiency	Brine (production of Sodium hypochlorite acid) Chlorate production
⑤	S		Platinum complex system	Good chlorine generation efficiency High low temperature of durability	Seawater electrolysis
⑥	LD	Electrodeposition	Lead dioxide	Overvoltage Large Special and catalytic ability to chrome plating	Chrome plating Ozone generation Waste water treatment

Features of Exceload F

The composite system of Iridium Oxide Coating

- It is an insoluble electrode and it gives excellent properties as an oxygen generating electrode
- Low voltage
- Longer shelf-life
- It also gives high-performance products in the system

Application

- For precious metals recovery
- Many Japanese companies have already adopted our electrodes to their plating system in the recent years and the demand of our products have been increasing.

Plating applications (from the soluble anode to an insoluble anode)

- By changing from the soluble anode to an insoluble anode
- Improvement and cost reduction of the plating quality can be expected.

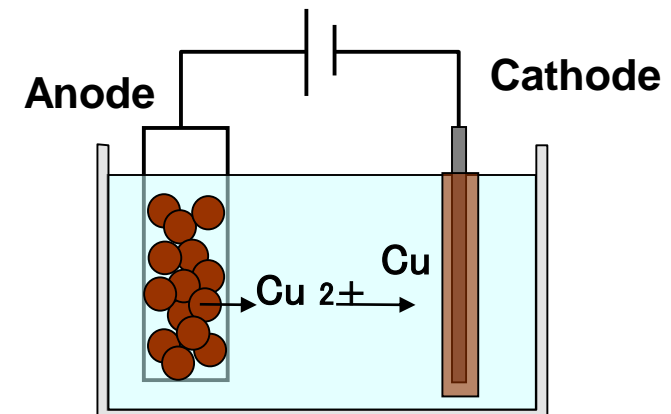
Advantages :

- There is no occurrence of sludge
- Inter-electrode distance is constant and uniform plating can be achieved.
- Easy management of the plating solution

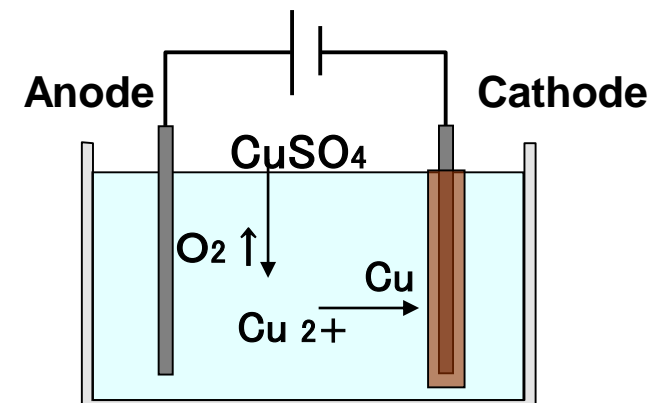
Disadvantages :

- Consumption of large amount of the additive (with measures goods)

Examples copper plating



Soluble anode (copper ball)



Insoluble anode

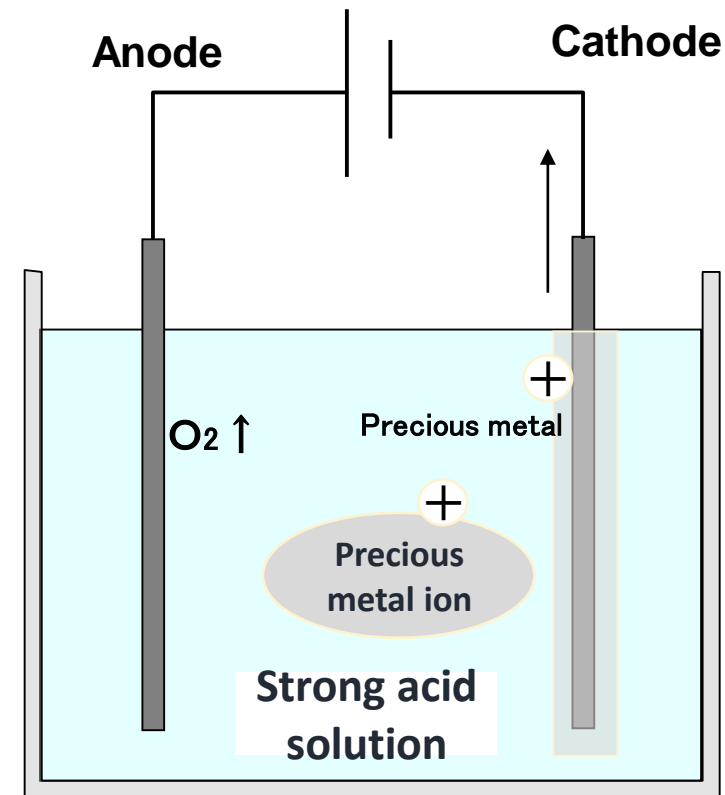
Metal Recovery Applications

- The home appliances and electronic components of scrap contain many types of precious metal. For recovery of the precious metals from these "ore of city", electrodeposition method is used.

Features

Exceload F has a unique system with combined iridium oxide coating thus it shows excellent properties.

- It has excellent acid resistance.
- It gives low oxygen evolution potential and highly efficiency



Improved Exceload electrode F Intermediate Layer

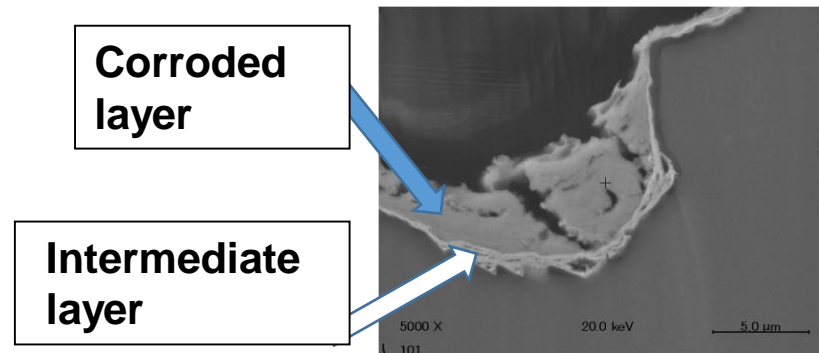
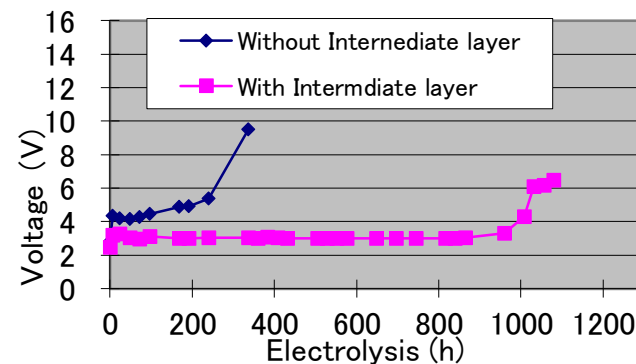
Prolong life time by the intermediate layer

If there is a rapid deterioration progresses, the coating layer will tarnish from the titanium substrate.

Durability is improved by inserting an intermediate layer between the titanium substrate and the coating layer.

* Effect will vary depending on degraded condition

Life test conditions 1M sulfuric acid electrolyte
 material deterioration 200ppm
 Power density 50A/dm² Between poles 5mm
 Liquid temperature 25°C



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