

Titanium Anode Basket Specification

The use of fabricated titanium anode baskets to hold soluble anode balls or chips is common to many electroplating applications. Select baskets manufactured by an experienced and reputable fabricator, your supplier can usually recommend one or more sources. Specify ASTM grade one (1) titanium stock material not less than 0.028 inches thick for basket fabrication. Lesser grades of titanium, numbers 2, 3 and 4 or thinner sheet stock are more likely to result in baskets of poor structural quality and reduced chemical resistance. In all cases baskets should be kept full of balls or chips to a level equal to or greater than the operating solution level. Continuous operation with anode fill levels below the level of the electrolyte will result in an increased resistance and excessive current draw in the localized area at the solution basket interface. Depending on the electrolyte, an insulating layer of insoluble salts may be deposited on the mesh further increasing the resistance, even following anode material replenishment. In some cases where the cell continues to operate with insufficient anode fill the resistance may increase to the point exceeding the breakdown voltage of the naturally occurring titanium oxide film, resulting in active corrosion of the mesh. For these reasons the hooks or straps used to suspend the basket from the anode bus bar should be long enough to extend down the mesh four to six inches below the expected solution operating level. Occasionally halide contamination, especially the presence of fluorides has been implicated in rapid and severe cases of basket corrosion. Maintaining the basket fill level can minimize or prevent mesh corrosion and ensure uniform current distribution through a single basket and across the anode array.