

QUALITY CONSIDERATIONS DURING ANODIZING

Contamination Caused by Deburring Wheels

Many parts are subjected to various deburring treatments prior to anodizing. One problem encountered is caused by material from the de-burring wheel being left on the part as a result of aggressive finishing. The result is a deposit that has been melted or smeared onto the part and acts as a masking agent during anodizing, leaving a bare spot or uncoated area.

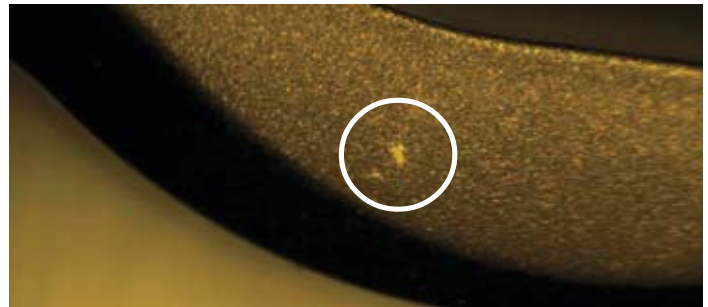
Two of the most common brand names include "Bear-Tex" and "3M" or "Scotch-Brite™" wheels and include product in many forms. The generic makeup is nylon based abrasive media.

Convolute Wheels are constructed of non-woven nylon impregnated with abrasive grain and wrapped in layers around a core and bonded together to produce a uniform wheel. Convolute wheels are available in a wide range of diameters and can be broadly classified into cleaning and finishing wheels and deburring/blending/polishing wheels.

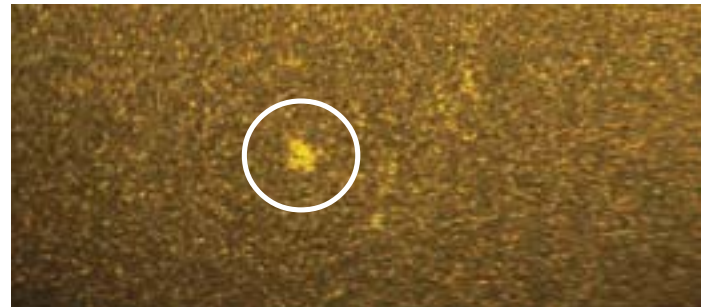
Unitized Wheels are constructed of compressed, non-woven, tough abrasive fibers bonded together with an adhesive system under heat. The hardness, abrasive material, (silicon carbide or aluminum oxide), and grit size...medium, fine, or very fine are variables in the manufacturing process. The intended purpose and specific deburring or polishing need will dictate the optimum choice.

Material from the wheel can be deposited on the work piece because temperatures at the grinding interface may exceed 400° F. If the wheel is wrong for the application, too much pressure is applied or the speed of the operation is excessive, material from the wheel can be melted onto the part. Commonly referred to as a "smear", the deposit is typically one or more of the components of the material used to manufacture nylon based wheels. Titanium parts are particularly susceptible to smears because the high heat generated in the deburring process can quickly melt the matrix of the wheel if not properly controlled.

Compounding this problem is the fact that the material smear may not be visible to the operator. Nylon and/or fibers along with the abrasive can withstand normal cleaning and anodizing, then become easily visible after the processing is complete.



Some examples of this problem can be seen here.



In conclusion, it is extremely important to choose the correct deburring wheel for the job and then use it according to manufacturer's recommendations. The Internet provides a wealth of technical information on these products through the manufacturer's web sites and will direct you to technical service representatives. These specialists will have the knowledge and experience with your materials or products to guide you in determining the appropriate deburring solution.

NOTE: Direct verbal communication with the Shop Supervisor or Foreman is also advisable.