

## **TECH SHEET**

### **PEM® - REF / ZINC PLATING APPEARANCE**



#### **Brief on expectations of appearance and performance for standard zinc plating.**

Occasionally we receive questions because the zinc plating is not bright and shiny or not as bright as previous shipments, other lots or from other regions.

In our literature we simply call out our zinc plating as *zinc plated 5µm, colorless, plus sealant/lubricant*. Further, but not generally noted is that this plating meets appearance requirements as specified by ASTM B633 paragraphs 7.3 and 7.5. These state:

*7.3 Luster - Unless otherwise specified by the purchaser, a bright, semi-bright, or dull finish shall be acceptable.*

*7.5 Workmanship - The surface of the electroplated article shall be uniform in appearance, free of visible coating defects, such as, blisters, pits, roughness, nodules, burning, cracks, or unplated areas, and other defects that will affect the function of the coating. The coating shall not be stained or discolored. However, slight discoloration that results from rinsing or slight discoloration that results from any drying or baking operation to relieve hydrogen embrittlement, shall not be cause for rejection. On articles in which a visible contact mark is unavoidable its position shall be that chosen by the purchaser. The electroplated article shall be clean and free of damage.*

Globally we utilize many different plating sources and there may occasionally be variations among them. There could also be variation from batch to batch from any one source. There is no inexpensive way to control slight color variations. We want our fasteners to look good, but they are plated primarily to protect the base metal from oxidation and corrosion. Slight variations in hue do not affect the corrosion resistance. Most parts are baked at 375° F / 190°C to relieve hydrogen embrittlement and this sometimes yellows, discolors or dulls the finish.

PennEngineering® makes every effort to ensure that parts are plated in a manner that brings consistent appearance to all products whether or not they are produced in the same lots, different lots or even in different countries. In any case, **it must be understood that plating appearance does not necessarily equate to plating performance**. Slight variation in appearance is generally not a valid reason to reject product.

Samples of questionable parts should be examined by factory personnel to assess any plating appearance issues. If a return of product is warranted, arrangements can be made to return fasteners to manufacturer.