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Corrosion Discussion of TCB-107 and TCB-110 May, 04

We hope the following information is of assistance regarding the electrical conductivity of TCB-107 and TCB-110 and what that means for the coating.

TCB-107 and TCB-110, like all Aluminum/Stainless Steel filled metallic ceramics, provide corrosion protection based on two factors. The first is the sacrificial nature of the coating. The second deals with anodic/cathodic protection, which is based on the electrical conductivity of the coating. One significant test procedure to insure that the coating is properly formulated is in its ability to pass a salt spray test. Formulations that are not very effective may only pass a 1000hr salt spray test better coatings will do more.

The sacrificial nature means that over an extended period of time small particles of the coating will be lost, while protecting the substrate from corrosion. This will show, after many years exposure, as a dulling of the coating. This is similar to galvanic protection.

The second is the prime corrosion-inhibiting characteristic. It is this characteristic that really shines at high temperatures and is responsible for the finish. This is a case of form following function. The coating needs to be "sealed" to create this type of protection. By sealing the coating all of the porosity is closed and an electrically conductive film is created at the surface. This results in the bright shine. THE BRIGHTER THE SHINE THE BETTER THE SEAL. While a seal can also be created by low pressure bead blasting, the finish is a Dull Silvery appearance, not the brilliant Chrome or Stainless Steel finish which results from Synergy Coatings Proprioritory designed and built Polisher.

The industry standard is a 5000 hr test according to ASTM B 117. TCB-107 has passed that test. Synergy Coatings cannot release the specific documentation due to confidentiality agreements; however we have letters showing the test results from the manufacturer who had the testing done. This was a major Automobile manufacturer who is planning on using TCB-107 on a new product to be released later this year, and wants no release of data that could benefit their competition.

Keep in mind that TCB-107 is the most widely used metallic ceramic in the automotive aftermarket. This is becoming very evident when you consider the number of manufacturers that no longer reference a coating company by name when indicating their exhaust parts are coated. Instead they are using the generic term "ceramic coated". At least one company is waiting to produce a new catalog using the generic term so that they may switch to our material. This change to TCB-107 is based on the superior characteristics of TCB-107 as well as the excellent service provided by our regional licensees, who have been providing their customers. This change would not be occurring if our coating was not at least the equal of the "others" and in fact is superior, as we have documented by applying our coatings on turbo chargers.

We have never formally submitted TCB-107 to a 3rd party test laboratory to do an electrical conductivity test, as that is only an indication of potential, the actual salt spray test shows the reality…