



## ARCOR® Epoxy EE-121 & 121HT

### Technical Review - Product Summary

The ARCOR® EE-121 & EE-121HT are epoxies of ARCOR® design & manufacture.

The application specification and spray procedures written by ARCOR® provides for the best application of the product given the restrictions of its design.

The product is designed to provide high chemical and high temperature resistance relative to epoxies. The nature of the resin system required to provide these performance criteria make application difficult as they are very viscous and have a very short pot-life.

Additionally the cure system has a high degree of internal stress which can negatively affect adhesion and can lead to micro cracking of the cured film. In order to mitigate these negative potentials a number of types of fibers & fibrous minerals have been incorporated into the design as well as coupling agents, flow & leveling agents.

Working with the material design we have designed plural component spray equipment to provide for larger scale spray application.

It is important to understand that the nature of this material, as stated above, makes application any application difficult. It has a very high thixotropic aspect making it hang very well. Many applications can be done in one single coat to attain our recommended thickness (40 mils for most applications with a maximum single spray applied coat of 80mils). As noted above, the internal stresses of this product are very high and the multiple coats are another step in helping mitigate those negative effects along with the product design elements noted above. However, the nature of the product is such that intercoat adhesion is difficult to attain. It is recommended that relative humidity to be maintained at <40% and that overcoat times be kept to the minimum possible in a given application. For hand applications, or applications without dehumidification, it is recommended that before an overcoat is applied, the previous coat should be lightly sanded (80-120 grit sand paper) and then thoroughly wiped with Acetone.

The thicknesses we recommend are nominal thickness as averaged over a large area; the product is much too difficult to apply within very specific target ranges. The fibrous additives used to mitigate stress make the product resistant to film leveling so a smooth level finish is not attainable as one would expect with more traditional film forming materials.

It is therefore necessary to target higher thicknesses in order to get to the targeted nominal thickness.

In this case a target range of 50-55 mils is necessary to attain the targeted nominal of 40-45 mils due to the large variances in thickness when applying this coating and due to the aggressive nature of the application we feel more comfortable with higher low end readings, hence the 50-55 target. This does not mean that the high & lows are within this range, only that the average nominal thickness will fall within this range.

The NACE PA2 standard that we use calls for 5 clusters of 3 readings within a 100 square foot area. Each cluster is averaged & then each of the averages is added & averaged to attain the nominal reading over the given area. There is no absolute hi or low readings. For our purposes here we want to keep the low readings higher hence we have targeted 50-55 during application.

Thicker localized areas are not of concern and in fact are to be expected due to the difficulties of application explained above. They will not impact the performance of the coating.