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Chemical Discoloration of Coatings & Linings Used in Acid Storage

With the increase linings sales and new chemical markets there has been an associated increase in the number of inquiries for linings resistant to more aggressive materials.

While the chemical resistance lists for our linings are good indicators to the resistance to aggressive chemicals, in particular acids, the specifier should be aware of any purity requirements imposed on the stored material. The customer should also be made aware that the commodity may change color as well due to the lining changing color.

This bulletin explains the potential problems in acid storage containers with protective linings.

DISCOLORATION AND CONTAMINATION

Care should, therefore, be taken to ensure that the stored material is not affected by the coating. Purity is often required in stored material; for example phosphoric acid to be used in food production requires a high level of purity.

Higher concentrations of acids in contact with linings can discolor the protective lining. This discoloration can in turn contaminate the acid which can make it no longer fit for purpose. Contamination of stored material is often a cause for claims against the lining supplier.

While in some cases the discoloration may not contaminate the stored material the risk must always be considered. Adding to the complexity, any contamination may only affect the 1st or 2nd loadings (but we cannot guarantee that contamination will not be an ongoing issue).

It is important to establish the degree the purity the customer requires prior to specifying linings for acid storage.

There will also be a color change to the lining and the commodity, this is dependent on the acid stored and the lining used. However, below is a general list of color changes to the lining when stored the following acids (guideline only):

Acid	Color Change
Phosphoric Acid	Red
Sulphuric Acid	Red
Nitric Acid	Orange/Yellow
Hydrochloric Acid	Green