
Pitting

Pitting is another phenomenon encountered in tanks. It appears as small blemishes called "pits". If this is not dealt with quickly it can soon lead to the complete destruction of a tank. Corrosion of this kind may appear within a matter of hours, even on a tank, which has been operated perfectly successfully for many years. Corrosion is probably the main cause a tank has to be scrapped. A tank barrel can easily be ruined by careless acceptance or handling of potentially corrosive loads, even the most mild in nature. e.g. washing up liquid

Pickling and Passivation

Once a tank shell has been completed it should be pickled and passivated. Pickling is a process whereby the interior surface is treated with a mild acid to remove blemishes from the metal. During pickling high spots will hopefully dissolve away, and pits have their edges removed so that products cannot become trapped in or around such places. A hard thin protective oxide layer is created by passivation. Stainless steel forms this protective layer naturally with the circulation of air over the surfaces.

Stress Corrosion.

Stress corrosion is a less than completely understood phenomenon that can occur to tank shells. It can happen from the inside or the outside. Whenever metal is worked shaped, welded and fixed, as with a tank barrel onto running gear, or into a container framework, it is inevitable that the material of construction of the tank shell becomes stressed in certain areas. Where stress remains, such areas become particularly sensitive to corrosion. This form of corrosion typically appears in tank shells as thin streaks or thin cracks in the metal. Chlorine is often a major contributor to this phenomenon.

However, natural passivation can't be assumed, so steps are taken to ensure the oxide layer is created artificially. It is most important that tank shells are correctly passivated after construction and at any time during their working lives when there has been a need to buff, grind, sand, weld, or polish where the oxide layer may have been broken. Failure to do so will expose the tank shell in that particular place to an increased risk of corrosion. The importance of preserving the passive layer cannot be over emphasised.