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## GRINDING AND POLISHING OF STORAGE TANKS

When changing their contents storage tanks are cleaned by rinsing and inspected for contamination and other defects. Various products produce in the course of time contamination that can no longer be rinsed off. Latex for example often leaves stubborn contamination. Storage tanks are generally manufactured from austenitic types of stainless steel such as AISI 304 and 316. The removal of corrosion products and in particular timely treatment of areas of point corrosion are of vital importance for storage tanks. For many products, for example food, stringent requirements apply for surface roughness with a view to reduced adhesion of bacteria. Roughening as a result of contamination and corrosion products may render the tanks unusable for the application proposed. In order to remove stubborn product contamination and corrosion products the tanks are ground and polished internally.



*Contaminated surface*

Grinding and polishing is also used to give the stainless steel a smoother and more attractive appearance. A smoother surface is also less prone to corrosion. Areas of major damage may be ground off. Grinding and polishing materials are selected in response to the surface condition. Initial treatment is generally with a coarse grain. This enables a lot of material to be removed in a short period. After the coarse grinding the material is successively finer ground (with a variety of grain sizes). Finally it may then be brushed, treated with Scotch-Bright (matte/semi-gloss) or polished (high gloss). Checks are made at all times between the various procedures to establish whether the wall thickness will allow further grinding and polishing. There are for grinding and polishing a number of materials, such as grinding belts, grinding disks, flap brushes, flap disks and MCB-disks.



*Grinding belt*



*Flap brushes*



*Air spinner with various grinding disks*

Holes, defects and points of corrosions may be filled using TIG welding. Then after filling the entire unit is ground to a smooth surface, checking the wall thickness throughout to determine whether further grinding is admissible.

The tanks are generally pickled and passivated after the grinding and polishing treatment. Pickling can be carried out only after grinding and polishing; Areas of damage caused by point corrosion can generally be eradicated and restored only by grinding (supplemented perhaps by TIG welding) and pickling of surfaces with point corrosion would aggravate that corrosion. Pickling is in the first instance applied to remove grinding residues and other contamination from the surface, because they, and in particular iron particles, may cause corrosion. Pickling also increases the chromium content of the surface layer and hence the corrosion resistance.



*Defects before and after filling by TIG welding*

During the pickling and passivation treatment the pickling agent is sprayed into the tank using a spray ball (attached to the manhole) and circulated. The tank, after pumping empty, is treated with a steam cleaner. Then the entire interior surface of the tank is cleaned manually with water using a high-pressure spray. The tank is then rapidly dried by spraying hot water via the spray ball.



*Spray ball*

Mondial Surface Treatment / Vecom Stainless Finishers B.V. is specialized in the treatment of tanks by grinding, polishing, pickling and passivation.



*Pickling and passivation of a tank*

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