

Metal tank treatments.

With a wide variety of sizes, uses and situations it is not sensible to proscribe a single treatment method for the inside or outside of a tank. Below are listed the types of tank we frequently encounter and appropriate treatment regimes. In some cases there are options. All the options are good solutions.

In all situations the surfaces to be treated should be cleaned with detergent and degreased using a normal alkaline engine cleaner.

We've designed and manufactured three products to treat corroded steel and iron. These are all mentioned many times below so it is perhaps worthwhile discussing them briefly to avoid tedious repetition later.

Fertan rust converter (FRC) is our original and main product. Applied to a rusted surface it will make its way through the rust to the underlying steel and lay down a zinc layer. The rust above it will be converted to iron tannate. The majority of this will be bonded to the underlying substrate but some will be left as a loose black dust on the surface which will be rinsed off when the surface is wiped down to remove unused excess FRC. The surface will be blue/black and resistant to corrosion. It provides a perfect base for overpainting or the application of cavity wax / underseals. FRC is also used to leave a corrosion resistant finish on Fedoxed surfaces.

Fedox is a rust remover for removing rust from tanks or components that can be dipped in a process tank. We designed it as we have met the problem of rust removal from tanks many times and wanted something which really worked well but didn't harm uncorroded metal. Fedox is effective and safe. It is mixed in a ratio Fedox : water of 1 : 8 to 1 : 10 and can be put inside fuel tanks or into a process bath. Kept warm it will remove even heavy corrosion in less than an hour. The final surface left is the natural colour of the iron or steel. The surface is very active and must be treated with FRC, or oil or paint within 20 minutes of the Fedox being rinsed off the surface.

Tapox is a fuel proof tank sealer that we designed to line fuel tanks. It works well and has a design life in excess of 20 years. It has been laboratory tested to simulate that length of time. It has been in use since 2001 and has been fault free to date. It is proof against continued exposure to 100% ethanol.

Motor car tanks.

Installed tanks.

Insides: cannot really be treated, remove from vehicle.

Exterior: apply Fertan rust converter to accessible surfaces to convert the rust and stop corrosion. In the long term the surfaces should be painted with Ferpox or a paint of choice.

In almost all circumstances it is preferable to remove the tank and do a proper job.

Removed tanks.

Insides: option 1, treat with Fedox rust remover, Fertan rust converter and Tapox tank sealer

option 2, treat with Fertan rust converter and Tapox tank sealer
option 3, treat with Fedox and then Fertan rust converter
option 4, treat with Fertan rust converter

Exterior: option 1, apply Fertan rust converter to convert the rust and stop corrosion. In the long term this surface should be painted with Ferpox or a paint of choice.

Option 2, immerse tank in a Fedox bath. On removal either treat with Fertan rust converter or paint.

Motorcycle tanks.

Installed tanks.

Insides: cannot be treated

Exterior: Prepare surface to a good level of finish. Apply Fertan rust converter to convert the rust and stop corrosion. Prep and paint tank.

In almost all circumstances it is preferable to remove the tank and do a proper job.

Removed tanks.

Internal: option 1, treat with Fedox rust remover, Fertan rust converter and Tapox tank sealer

option 2, treat with Fertan rust converter and Tapox tank sealer
option 3, treat with Fedox and Fertan rust converter
option 4, treat with Fertan rust converter

External: option 1, apply Fertan rust converter to convert the rust and stop corrosion. Prep and paint with Ferpox or a paint of choice.

Option 2, immerse tank in a Fedox bath. On removal either treat with Fertan rust converter or Ferpox or a paint of choice.

Marine fuel tanks

Installed tanks

Some modern builders of small boats (less than 25m) install tanks during the build in such a way that they can only be accessed by chopping holes in the boat or moving engines. Work on the outside and inside becomes difficult or impossible. Tanks with good access can also be difficult to work on if the inside is baffled. Many tank builders do not baffle tanks. The only course of action is to remove inspection hatches into the tank and see what you have before choosing a course of action.

On larger ships the problems decline as designers have considered the long term maintenance issues and designed in access.

So staying with small craft.

Internal: if access hatches exist it may be possible to use Fertan rust converter to treat rust inside the tank.

Fertan

De-rusting and Coating Fuel Tanks

Fuel tanks made from steel are susceptible to rusting. In the past when leaded fuels were in use, the problem was greatly minimised. As unleaded petrol is now used for health and environmental reasons older vehicles and engines have to cope with it. The availability of leaded petrol has been vastly reduced all over Europe.

Unfortunately modern fuels, even with an oil mix for two stroke engines, are aggressive to such an extent, that steel tanks corrode even when full. This is caused by the added MTBE (methyl-tertiary-methyl-ether), which is being increasingly added to improve the anti knock performance of the petrol.

The best preventative and remedial measure is Tapox, a 2 part epoxy which is designed specifically to be resistant to fuel and provide a corrosion free tank..

If the tank have a tank suffering from corrosion the instructions below show how to eliminate corrosion completely.

The De-rusting Process

With the tank removed from the vehicle ensure it is completely empty of fuel.

Please dispose of remaining fuel in an appropriate manner or store for later use

Close the petrol cock and / or seal any connections. Pour about 50cc of washing up liquid into the tank and add warm water. Leave this solution in the tank for about an hour, agitating the tank to thoroughly clean all inside surfaces. Drain the cleaning fluid and dispose of appropriately.

If your tanks have an existing liner then that can be removed now with our tank sealer remover as a first step. Then repeat the washing before moving on to the stage below.

Now, fill the tank with approx. ½ to 1 litre of FERTAN alkaline engine cleaner. Please do not use a mineral based product. Petrol, acetone, thinners or degreasing agent are also not suitable. Again seal all connectors and shake thoroughly to dissolve any remaining oil and petrol within the tank.

Leave cleaner to work for at least 1 hour agitating frequently and then empty the tank into a suitable container. If the cleaning fluid is not too contaminated re-use it at a later stage for cleaning the engine / gear box/ back axle. It may be useful to filter the cleaning fluid, coffee filter paper can be used.

Thoroughly flush the tank with water, opening all connectors, to facilitate complete drainage.

To accelerate the treatment with FERTAN Rust Converter, luke warm water can be used for the final rinse.

Please note:



It is necessary to wear rubber gloves / household gloves for these and the following procedures.

If you are flushing the tank in a sink put the tank on a soft surface. This prevents damage to ceramic sinks and to the fuel tank. When disposing of the rinse, do not drain it onto light coloured brick as it has a bleaching effect!

Do ensure and check that the tank is drained completely and then screw the connectors back on, sealing the tank. The petrol tap, if fitted, should be moved to the 'closed' position.

De-rusting and corrosion protection

Now you need to decide whether the inside of the tank, in addition to degreasing, needs to be taken back to bare metal, or whether the appearance of the surface after applying the final coat is less important to you.

This is not a quality issue, just one that can effect the look of the final coating.

Pour either Fertan Rust Converter or Fedox concentrate into the damp tank. If you use Fedox about 10% or more of the tank volume is required. The Fedox will completely lift and eliminate any rust in the tank. After rinsing out the Fedox and rust the bare metal surface should be protected against new corrosion by Fertan Rust Converter and then the surface is sealed with the 2 part Tapox epoxy to provide the long term protection against rust and fuel.

Pour **FERTAN** Rust Converter into the tank which should still be damp from the final rinse. Use about 0.25 litre for a 10 – 15 litre tank volume, 1 litre in a 40 – 50 litre tank. More may make the job of coating the inside of the tank easier but it is more costly.

Now turn and shake the tank with **FERTAN** Rust Converter ensuring that the inside of the tank is completely covered by the fluid. Particular attention should be paid to slanting areas such as frame mountings, here it is important to shake the tank well to ensure that even difficult to reach areas are completely covered. It may be advisable to leave the tank laying in several different positions to ensure thorough coverage.

Then completely drain the **FERTAN** Rust Converter from tank into clean plastic container.

Remove all caps and store the tank for a minimum of 24 hours or longer at a temperature of 20 degrees Celsius. This will enable **FERTAN** to have its chemical reaction with the metal and ferrous oxides in the tank.

Refill the tank with the previously drained amount **FERTAN**, re-fit connectors etc. and shake tank thoroughly to enable even coverage and then fill up the tank with clean warm water. Leave the mixture (FERTAN/water) to work overnight (12 hours) at room temperature.

Finally drain the tank and rinse thoroughly to remove any loose particles and leave to dry..

At this stage any petrol caps/ connectors, petrol cocks etc. must be cleaned and rinsed immediately with clear water. Any **FERTAN** splashes on the exterior of the tank must be wiped immediately by sponge and water to avoid discolouring the paint work. This is not less important if the tank has been painted recently.

Although this method may seem to be labour intensive and time consuming, it ensures that the tank is completely de-rusted and avoids the unnecessary removal of material caused by

mechanical de-rusting processes. This means the tank has not been weakened as happens with bead blasting or grinding.

Protection 2 - components

Now, we are ready to use the fuel resistant Tapox coating. This is going into an absolutely rust-free tank and will reliably prevent any future corrosion .

For this process it is necessary to ensure ventilation after coating the inside of the tank Only a very gentle supply of air is required (approx. 0,2 – 0,4 bar max) preferably from a compressor, though only a small air supply is required. The constant air movement will accelerate the drying process in the tank itself. Moving air removes the solvent quickly and prevents the coating moving inside the tank before it dries



The solvent is volatile as so it is important to stress that this air supply must not come from an electrical appliance, as the evaporating solvent could catch fire. Keep away from open flames – No smoking and ensure good ventilation!

The coating of the tank interior will be the **TAPOX**, which has to be mixed before the coating begins with hardener **T X 10**.

To start the reaction add the entire contents of the smaller can of hardener (Component 1) into the coating (Component 2) and mix thoroughly using a small whisk. In its original form and consistency the can of coating contains 500 g and the hardener 50 g = 10 weight % This amount is sufficient for tanks of approx. 15 litre and the solution may be mixed in the supplied can (750 ml).

Ensure the tank connectors are sealed and the petrol cock must be shut. The tank being dry and rust-free after de-rusting and coating treatment with **FERTAN**, the mixed **TAPOX** can now be poured into the tank filler neck. Firmly lock the filler neck. It would be advisable to put a thick plastic cover under the tank cap if the original cap is used, this would avoid accidental coating.

Now turn the tank on its side and up side down etc. to ensure thorough coating from all angles.

Then open the petrol cap and petrol drain cock or one of the connectors and drain all remaining liquid into the **TAPOX** container. Please ensure that all residue is properly drained off. Any splashes that have occurred on the exterior paint must be **immediately** wiped off with thinner (Nitro/Universal - thinner)

Turn tank so that the largest opening, normally the filler neck, is facing downwards and let it start to dry for about 30 minutes

Air supply max 0.2. – 0,4 bar

for approx. 180 minutes

As was described above, now blow a constant air flow through the drainage opening into the tank for a minimum of 180 minutes so that all solvent residue is expelled. It is heavier than air. This process is complete as soon as the coating inside of the tank is dry. If the tank has ¼” internal screw thread (internally or externally) an air coupling may be firmly attached for connection purposes, which makes this process considerably easier.

It is of great importance that the air passing through the tank has is low pressure, a maximum of 0,2 – 0,4 bar otherwise the coating , still soft at this stage, could be damaged.

The coating fluid that was drained from the tank and into its original can with the lid tightly screwed on should be stored at 4 degrees Celsius (in a fridge for example)

The largest drainage opening pointing downwards , harden off the tank for 12 – 24 hrs. and then repeat the coating process as above using the remainder of the coating material (from fridge)

Attention: Agitate coating fluid thoroughly before use.

Again, after the initial 30 minute period ensure air supply for 180 minutes.

Any remaining product may be drained into original can, lid firmly secured and stored for a maximum period of 3 days at temperature of 4 degrees C . During this period it may be used for coating any iron or steel.

Finally, leave the tank to harden off for a minimum of 5 days (120 hrs.) at a temperature of 20 degrees C.

Further user information is available via our telephone help line on 02380 456600 or

www.fertan.co.uk

info@fertan.co.uk