Supplemental Information & Instructions on

Cleaning, Etching, and Sealing Gas Tanks

using

220-620 or GAC9858X Fuel Tank Cleaning Solution
220-630 or GAC9859X Fuel Tank Etching Solution
220-450 or 608591A Fuel Tank "Slushing" (Sealing) Compound

Why exactly do I need a slushing compound?

Original gas tanks have a useful lifespan that is determined by the base material and the anti-rust or anti corrosion coating used when the tank was made. Steel tanks with a protective coating of zinc are most common. The zinc plating will last for many years, but it eventually disappears, leaving bare steel exposed to the gasoline. Gasoline has always absorbed water vapor, and the water will settle to the bottom of the tank where it is in direct contact with the steel. The addition of ethanol as a fuel blending agent has made this problem much worse. Once water touches the steel, rust begins to form. Once the rust starts, it is simply a matter of time before the tank starts to leak, usually at a seam or through pinholes. To salvage the tank, it must be cleaned thoroughly, and the inside of the tank must be completely covered with a layer of material that is impervious to gasoline and the additives in gasoline - including ethanol. If you can salvage your original tank with careful cleaning and then sealing it from the inside with a "slushing" (sealing) compound, you can extend the life of the tank for years.

Should I seal my old gas tank even if there are no leaks?

Tanks that are rust and gum free that have no pinholes or leaks do not need to be treated with a sealer. Needless to say, the odds are the gas tank in a vintage British car is not likely to be clean and rust/gum free. The process of cleaning, etching and sealing a tank is a repair operation, like repairing rusty body panels.

What can I do to protect my original tank that is still in good condition?

The key is to minimize the exposure of the inside surface of the tank to water. Moss Technical Services has published a series of informative articles about dealing with ethanol/gasoline blends that are becoming the only fuel you can buy at the pump.
http://www.mossmotors.com/SiteGraphics/Pages/ethanol.html
Moss carries a variety of products that will help you manage your fuel related maintenance tasks.

What if I buy a new tank?

If the tank is stainless steel, zinc or Ni-terne plated steel or aluminum, treatment with a slushing compound will not be needed. If the tank is raw steel, the inside of the tank will begin to rust as soon as you add gasoline. Treating the tank to prevent rust is an excellent way to protect your investment.

Why should I use this particular product?

Over 3 million cans of this sealer have been sold in over 40 countries since it was Introduced 40 years ago. More of this sealer has been sold throughout the world than ***all other brands combined***. This compound seals holes and seams far better than many sealers available today. The skin that forms is non-porous, tough and flexible, which means it will not flake or chip off the inside of your tank (assuming proper preparation). The sealant has rust inhibitors to prevent rust from forming between the sealant and the inside of the tank. It is not affected by alcohol or any other known fuel additive. This is not paint, and should not be confused or compared to a paint product. It is simply the best product for this application.

Is this slushing compound hazardous?

Generally speaking, all chemical products are hazardous! All should be used with appropriate caution. Follow the manufacturer's instructions, being particularly careful to follow the safety precautions.

Before you begin…

From time to time, Moss Tech Services has been asked if the additives in modern gasoline (especially ethanol) could break down or dissolving the sealer. There are reports of some sealants turning to “slime” in reaction to gasoline. First, most problems with sealer breakdown can be traced to improper preparation of the tank, and/or improper application and/or draining of the sealer, not a reaction to the gasoline or ethanol. Second, our supplier has confirmed that the sealer was reformulated many years ago to deal with modern gasoline additives including ethanol. Third, we have tested a dry film of the sealant ourselves and found that it is totally inert with pump gas and ethanol. Note that this sealant is intended for metal tanks storing gasoline, not gas-oil mixtures for two-stroke engines.

To properly apply any sealer, the inside of the tank must be ***absolutely clean*** and ***perfectly dry***. We cannot stress this enough. In the past, this was easily achieved by simply taking the tank to a local radiator or engine machine shop and having it “dipped”. However, many shops today are turning away this type of work due to a variety of environmental issues. Many of the commercial caustic solutions that worked so well are now proscribed for health and safety reasons. To allow you to properly, and safely, clean your gas tank at home we offer both a cleaning and an etching solution which should both be used to properly prep your tank for sealing. Both of these products are biodegradable and can be safely used at home.

Before any work can begin, the tank must be completely removed from the car. It's just not possible to properly clean, etch, and seal the tank without first removing the tank. Completely drain all gasoline and thoroughly ventilate the tank by allowing it to air out for several hours. Remove the sending unit, feed lines, and any drain plugs. Any tank mounted fuel filter will become partially or completely clogged with sealant, and so they must be removed. Now is also the time to remove any rust or scale from the outside of the tank using a suitable wire brush, Scotch-Brite pads and/or sand paper. There is enough cleaner for you to use it on the outside of the tank too. Pick a warm dry day for this project. High humidity and low temperatures will interfere with the process – the tank and the air temperature ***must*** be above 60º F (16º C), and 70º F (21º C) would be better.

Cleaning

To prepare the tank for etching and slushing, clean it thoroughly with our biodegradable cleaning solution, #220-620. This heavy-duty cleaning solution is supplied in 1 gallon (3.78 liter) plastic bottles. It is also suitable for cleaning engines and other non-absorbent surfaces in the shop and home, so any left overs will not be wasted. Following the directions, mix 1 quart (~ 1liter) of cleaner with an equal measure of hot water to dilute the solution. Seal all the openings in the tank, except the filler neck. Pour the 2 quarts of cleaning solution into the tank, and seal the filler neck. Enlist the assistance of a friend for the next part – manhandling a tank with half a gallon of liquid inside is good exercise. Shake the tank from side to side, and tip it back and forth as you rotate the tank to coat all inside surfaces thoroughly. Drain and repeat as needed until all gum and shellac residue is removed. For very gummy tanks, plug all outlets and allow the solution to sit in the tank, covering the worst areas, for 24 hours. If rust flakes or scale are still present, a length of chain can be fed into the tank, and by tipping and turning the tank over, the chain links will help the liquid cleaner scour the inside of the tank. *In some cases a tank that was leak free will develop leaks previously sealed by layers of gum and varnish. Keep in mind the sealer will fill only the pinholes – cracks along a seam or weld will not be sealed up well enough to use the tank.*

Etching

Etching the tank will provide a good surface for the sealer to adhere to – like a primer coat before painting. Plug all drains and pour all 16 fl oz (~ 1/2 liter) of our etching solution (#220-630) into the tank. Tip it back and forth as you rotate the tank, making sure that the etching solution covers the entire inside of the tank. Let it stand for thirty minutes. Repeat the “sloshing” and let the tank stand for one hour. Drain the tank completely and allow it to air dry thoroughly. It is hard to tell when the last little bit of the etching fluid dries, so plan on leaving it overnight. Note! The inside of the tank must be absolutely totally dry! Any moisture inside the tank will prevent the sealer from bonding to the steel, which defeats the whole purpose of the exercise.

Sealing the Tank

The end is in sight! It is time to apply the sealing compound, #220-450. (1 quart, ~ 1 liter) Plug all openings in the tank except the filler neck. Following the directions on the can, pour the entire quart into the tank. Tip the tank back and forth as you slowly rotate it over and over (two people make this easy). Keep tipping/rotating the tank, coating all inside surfaces thoroughly until a thin film is present. Now remove any drain plugs and allow the remaining liquid sealer to thoroughly drain back into the can. Blow compressed air through fuel outlet before the sealing compound has a chance to dry and clog the fuel pickup! This is particularly important as some applications have a filter screen over the fuel pickup pipe. If the screen is not blown clean, the sealer will dry, potentially restricting or blocking completely the fuel pickup.

Draining the excess sealant

As you drain the excess sealant from the tank, use a flashlight and a mechanic's mirror to check for sealant build up in the corners, along seams, and at the base of any baffle plates. Orient the tank to prevent sealant from collecting along these areas. If "puddles" of sealant are allowed to form, the top surface of the sealant may form a "skin" over some of the liquid sealant, preventing contact with the air. The liquid under the "skin" will never completely dry because it is protected. The thin film will never dry either because the underside is in contact with the liquid sealant. After a period of time, the thin, weak "skin" will start to break down. Liquid sealant will be free to float around in the tank, with a good chance of plugging the fuel pickup or clogging fuel pumps and lines. This is probably the most common problem we hear about, and it is often mistaken for sealant breakdown due to additives in the gas. So be sure and drain the excess sealer completely. If thicker coverage is desired, do it by building up several thin layers. Allow the sealer to set up for at least 48 hours before reapplying another coat. After the last coat of sealant, the tank should be left to dry for at least another 48 hours before reinstalling it in the car. Take the opportunity to replace any fuel system hoses/gaskets at this time. All plugs should be reinstalled using thread tape.

Left-over sealant

There may be more than half of the sealer left over. It may be stored in the original container. Properly sealed, it may be used later on another tank.

What if I decide to remove the sealant?

It can be removed, with some difficulty. The easiest way is to take the tank to a professional radiator repair shops or a shop advertising "ready-strip". Tell them the solvent for the sealant is methyl ethyl ketone, normally referred to as "MEK". If you don't find a shop nearby that can help you, you can do the job yourself using the "MEK" solvent. Paint removers containing "MEK" may also be used.

Any restrictions on what I can use as a fuel additive?

As just discussed, the solvent for this sealer is methyl ethyl ketone (MEK). Just be sure that the product you want to dump into your fuel tank does not contain MEK. The manufacturer suggests avoiding the use of "gumout" or similar products, as they have been known to contain MEK although it was not clear from the label.

*Although every effort has been made to ensure the accuracy and clarity of this information, errors and/or omissions on our part are almost inevitable. Any suggestions that you may have that will improve the information (especially detailed installation notes) are welcome. Please use the simple email form on the **"Contact Us"** page on the Moss website: http://www.mossmotors.com/AboutMoss/ContactUs.aspx*
If you prefer, you may call our Technical Services Department at 805-681-3411. So many people call us for help that we are often not able to answer the calls as fast as we'd like, and you may be asked to leave a message. We apologize in advance for the inconvenience. We will get back to you within 2 business days.

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