



ZIMMERIT PART-1

ZIMMERIT

Why the need for zimmerit?

***Magnetic mines that were attached by infantry to the sides of tanks were becoming a problem to the Germans, especially in Russia. The mines were attached magnetically to the critical areas of a tank in order to disable it, or sometimes it would even knock the tank out. The mines had a shaped-charge that is designed to burn a hole right through the metal, and discharge into the tank sometimes contacting ammunition or fuel which would knock out the tank.

The German Answer

***The Germans in turn developed a unique answer to prevent the installation of these mines. Sometime in 1943, the tank manufacturers were ordered to develop and apply a new paste like substance that was developed by the Zimmer chemical company. The application was to commence in August 1943. Zimmerit is excellent additional aid in approximating the date of production, or even where a vehicle was produced.

Components

***The substance was called 'zimmerit' and consisted of;

- 10% saw dust
- 10% zinc sulphide
- 15% ochre pigment
- 25% polyvinyl-acetate
- 40% barium sulphate

Characteristics of Zimmerit

***The paste itself was not anti-magnetic, but would prevent a mine from sticking mostly because of its rough texture. Application continued for a year to about August of 1944, until rumors that it was catching fire caused an order to cease its application until the problem could be resolved. The problem was found to be a rumor, but the application never re-commenced.

Application

Some factory applications are very unique. Most applications were done at the factory during production, but field units were well supplied with the paste, and rarely other vehicles such as halftracks received the application also. As well as preventing the application of mines, the zimmerit's very rough texture would also aid in concealing a vehicle. Vehicles that were

sent back to the factory from the front for overhaul also had zimmerit applied. A good example is with Ferdinands when they were upgraded to Elefants at Nibelungwerke.

The OKW ordered these vehicles were designated to have zimmerit; Tigers(400lbs), Panthers(320lbs), PzIV's(200lb), Stugs(140lbs), Jagdpanzers and Nashorns. Zimmerit was applied to all surfaces of the hull and superstructure that could be reached by a person on the ground. External surfaces like fenders and skirts, were not supposed to, but often did receive an application of zimmerit. Zimmerit was initially laid on and a rough pattern was made, and then left to dry for four hours, followed by hardening with a blow torch, and finally raising the surface with a tool into the final pattern.

Modeling Zimmerit.

Basics and References

***There are many different zimmerit replicating materials and tools available to model zimmerit on vehicles. There are a number of resources online, and I highly recommend Shep Paine's Modeling Military Vehicles and Tony Greenland's Panzer Modeling Masterclass books for zimmerit methods, as well as being just all around great modeling resources.

Materials

***Some methods and materials are better on particular scales, and some are not suitable for RC tanks as they do not take the rough handling that RC tanks receive. Some of the zimmerit replicating materials used to model zimmerit are Milliput, Squadron Putty, Tamiya Putty, Zimm-ite-rite, automotive fillers(Bondo-type), and some even used stuff such as DAPP caulk for an example of an odd material. There is currently on the market, photo-etched, and pre-fabbed zimmerit. These do have their uses, but they do not look as real as the putty application methods, nor do they have the adaptabilities that putties have when modeling damaged or chipped areas for example.

Hotknife

***Another method of applying zimmerit is by using a hotknife. This method can achieve great results, but it is less forgiving of mistakes, and modeling chipped areas and damage is more difficult. In the larger scales, it doesn't seem to appear as well as on smaller subjects.

Surface Preparation and the 'best material'

***Particular attention must be paid also, to the type of surface as well as surface preparation when selecting a specific material for application. Ensure that the zimmerit replicating material chosen either will bond to the surface material it is applied to, or that with the aid of a roughened surface it will adhere adequately. **THE BEST MATERIAL FOR A PERSON TO USE TO REPLICATE ZIMMERIT, IS THE ONE THAT REPRESENTS ZIMMERIT TO SCALE, AND THAT THE USER IS COMFORTABLE USING.**

Squadron Putty

***Squadron putty is a favorite for replicating zimmerit in a variety of scales. It is relatively strong, it bonds to plastic, and the usual problem with the putty shrinking actually aids the look of replication. Sometimes it chips a little, and it still looks real.

Milliput

***Milliput is also a favorite, but is more difficult and messy to deal with, and it takes much more practice to achieve acceptable results.

The Vehicle

***The vehicle to be zimmerited needs to be studied in photos, not just the same type of vehicle, but one that was at least produced at the same factory at about the same time. Study the type of zimmerit pattern, and where it is applied. Sometimes it's different. Tigers for example went through a genesis of different patterns, and often had two different patterns on the same vehicle. Such as the pattern of zimmerit on the sides of the turret, compared to the mantlet, or sides of the hull. These are not all.

***Another example to throw a loop into the confusion factor is the one single VK4501 (P) Tiger that was attached to SpzJgr 653 in 1944. The vehicle had a standard Tiger I turret, but had zimmerit over the recuperator housing. This was because it was built at the Nibelungenwerk and not at Henschel Un Sohn where application was different.

Ensure pattern is to Scale

***The next problematic issue when modeling zimmerit is ensuring it is the scale pattern. This is easily done by many methods, even with a ruler and calculator to scale the item. A simple approach is to pick an area, let's say the front glacis of a Tiger I as an example, starboard of the machine gun housing. Scale a photo, and then measure the distance on the photo from the top where it meets the deck, and down to where it meets the transmission deck.

***Measure the distance of the width of the zimmerit pattern, then count how many ridges are in the aforesaid distance. Once the pattern and area for the model needed are understood, an aid is to draw the vertical or horizontal lines on the model that the pattern will need as a guide. Note that even that the immediate area is covered; the adjacent area still gives a good sense of angle that sometime is confused with a hull's many angles.

Ensure parts that are applied over zimmerit are cleaned-up and ready

***Note; With the following putty methods, it is necessary to have the particular pieces such as tools or other articles ready to be mounted on the piece, so they can be 'pressed' in to place once the pattern has been made and is still manageable. Once the zimmerit hardens, it is sometimes difficult to get these on, and the appearance will be degraded.

Metal and Milliput

***As Squadron putty is not adequate to be utilized when applied to a metal surface, Milliput is required. You can glue a thin sheet of plastic to the hull, then you can use Squadron putty. The bottom line to remember with Milliput is use copious amounts of water when applying. Keep hands, tools, and the surface of the model wet when applying the putty. If this is done, the application is much easier.

***The other advantages of Milliput is a long working time, and you can stop at an intermediate row when the user needs to stop, then later pick up at the next row without worrying about irregularities in the application that would detract from the appearance. This process is much like laying tile thinset and grout. To apply Milliput, first 'roughen' up the surface of the model to give some tooth for the Milliput to adhere to, if not, the stress that some of the model's surfaces go through, will allow some of it to crack and chip off.

Applying Milliput

*** Mix up roughly the amount needed for the area. Wet everything that is going to come into contact with the zimmerit, and apply an initially thin layer over the areas to receive it. With your hands smooth the Milliput down, keeping them wet, then take a small flat tool (a mini putty knife) and really smooth over the areas. With the edge of this same tool, run it along the edges to shear off the excess. If you need more, slap it on. This stuff is very forgiving, when wet and has not set up yet. With the tool selected to accomplish the zimmerit pattern, start making the pattern. Again, make sure the tool is wet. If the method to exact the pattern is troweling, initially make shallow cuts, then dig each one deeper, each succeeding the other previous one in the same place until the proper depth is obtained. Modeling chipped areas can be done after the pattern has been done easily by simply carving out the desired area. Do this when the Milliput is still in it's workable state.

Squadron Putty Method

The Squadron putty method once learned is much easier to use. Once the area is prepared, the application goes very quickly.

First, lightly roughen the surface to aid bonding. Yes, this putty-like glue will bond to the plastic.

With a tool like a small putty knife(1/2" blade) push some out of the tube and spread it down thinly, paying particular attention that the height is all the same. A good trick is to spread as much as you can until the initial area of putty 'skins' over. Then go back and start impressing the putty with the tool.

Don't put on too much putty, as a little bit goes along way, and additional putty is easier to apply. A good tool that is the right size for Tigers is the razor knife used to cut wallpaper. Grind the end down, so that it is at a right angle to the length.

Keep a rag handy, so that you can keep the edge clean. After every few insertions, a little bit of putty will cling to the knife and start to harden, if not wiped off, it will make working with it much more difficult, and the insertions more ragged. Keep some thinner handy, as it cleans the fast.

With Squadron putty, modeling chipped areas is easy, place a piece of tape in the area desired to be chipped, and apply the putty, work it with the knife, then pull up the tape while the putty is still manageable. Use 3-M blue tape as it adheres well, it is strong, and doesn't leave a residue. Sometimes it may be necessary to lightly push the putty back down after removing the tape, then retool a little bit, it's fast and easy.

You can also use tape to border areas that do not need zimmerit. This is highly recommended, as the putty will mar any area not covered.

Whichever zimmerit method is chosen, a nice looking model can be produced with most. The secret, as with most skills is practice, practice, practice. So practice on scrap beforehand, prepare the model pieces that are to be mounted during the process, roughen the area, and apply the putty. Whichever method is chosen, the three big problems I see that people do wrong are; zimmerit's way too thick; zimmerit's too clean applied (like an Andy Warhol Campell's Soup picture); wrong zimmerit pattern. After a couple of days to let the model completely dry, primer gray, paint, weather, and enjoy your model.

Painting over zimmerit, because of the additional surfaces, requires at least twice the amount of paint for coverage than the standard surface.

Photo Essay

These are two projects that I worked on and documented. The first is a Tamiya 1/16 Tiger I produced in February 1944 and belonged to Kurt Sowa of SS-101. This is the same tank that Wittman utilized on his Villers-Bocage ride. I did all the zimmerit, final detailing and painting of this tank for an individual and the photos were by Dave Merriman. Tigers at the time this tank was being produced had two separate zimmerit patterns, note the difference between the turret sides and that of the mantlet area and the hull. The second vehicle is a Marcus Horne 1/15 Panther Ausf A that belonged to the same individual. Here I demonstrated for the individual in a couple of hours how to apply this type of pattern and he went ahead and did the rest of the vehicle. Out of all the people I've shown, this one came out the best. I later final detailed and painted the vehicle which represents the one belonging to Ernst Barkmann of Panzer Regiment of 2ss Pz Div.

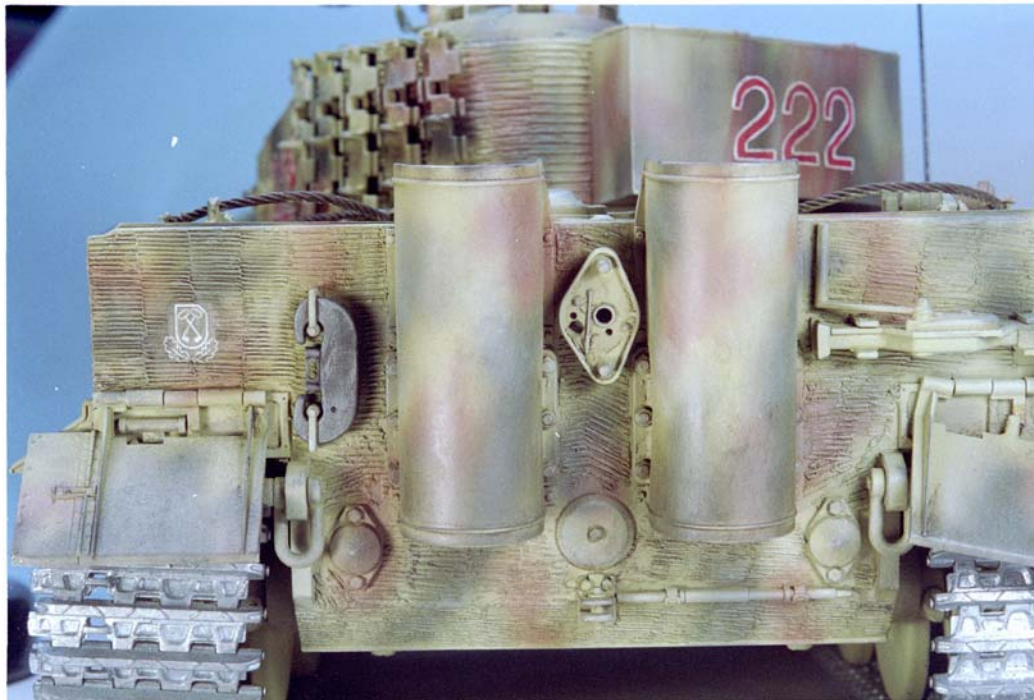


Here you can see the base vehicle and application is going on the lower hull. This tank had a prior owner, so all the previous paint had to be removed prior to application.

Not the areas above the transmission where a permanent marker was used to create alignment guides. These aid the model in direction when not referencing right angles of the tank. Seen below the tank are a tube of Squadron putty, some laid out on plastic card, and a razor knife wrapped in tape to protect your hand.



Here zimmerit application has been completed with chipped areas modeled in. Some places like above the transmission housing were historical heavily chipped due to the crew walking on it. Note the contrast between the zimmerit pattern of the turret sides and that of the mantlet and hull. Also note that if you're going to have parts like the track cable that the part needs to be attached when the zimmerit is still pliable.





(For the two photos above) Here's the finished product except for the tracks(separate topic). When you paint over zimmerit, you pretty much have paint on the hull numbers, balkenkreuz etc. With the 1st SS PzKorps symbol, a decal could be used as the area on the actual tank was chisled out and made flat. Also, if you notice the areas where zimmerit was chipped off, but not due to a shell impact, the area underneath is dunkelgelb, not red oxide primer. This was because the tank was base painted, and then zimmerit applied. This is also how it occurred of course with tanks that had the application applied in the field.



Here's application of zimmerit on a Panther. Here I demonstrated by applying zimmerit to the complete starboard side of the turret in a couple of hours to the owner, and the owner applied the rest. Not rocket science at all, applying zimmerit's cake.



Again, chipped zimmerit not from shell impacts, and the hull numbers and balkenkruetz hand-painted on. I wound up getting this tank back, and after final detailing and painting. Note the difference in the tracks on this tank and the one above. This is a very easy procedure that keeps its color, even after running. The bad thing about them was I found out they were made of not zinc, but white metal. This method will be included in a future issue.

The information from this article came from the multitudes of reference that can be obtained from books and online.

Jake

ACE member
Virginia Beach, Virginia
www.tankace.org