Mago del Sur´s / Just do it´s Experiences

Inversalu - Underwater Coating

When we purchased our JUST DO IT in 1998, the boat had been coated with a zinc coating from Meta-shipyard. Since then, we have been using this coating with few interruptions. Since the good JUST DO IT has now sailed around the world, we are often asked about our long-distance sailing expe-riences with this coating. So here is our personal summary after years of use.

JUST DO IT in the western Swedish skerries. Despite somehow similar colors, the Inversalu coating below the bare aluminum hull is clearly visible.

Preliminary remarks

Like Metagrip, which is designed for steel boats, Inversalu comes from the French Meta shipyard. The shipyard is known as a manufacturer of aluminum and steel boats. The coating is not a paint in the traditional sense. Inversalu is an inorganic zinc silicate, consisting essentially of nothing more than dust-fine zinc powder, which is applied to the boat hull with the aid of water glass, which I assume to be potassium water glass due to the relevant application here, as a carrier or binder. Water glass in the form used here is an aqueous, alkaline potassium solution. Applied directly to the bare aluminum surface, a solid, insoluble coating (silicic acid or silicification) forms after the water content has evaporated.

We have been using this paint since 1998, when we acquired the boat. We only had to switch to another product twice. In 2000, there was temporarily no German importer, and in 2006, we had a supply problem in Argentina. The airlines were having problems with air freight, and we also had serious concerns about whether the Argentine customs authorities would create difficulties during import. We therefore applied a conventional antifouling coating in Buenos Aires. After returning to home waters, the boat was sandblasted in the spring of 2010 and a completely new Inversalu coating was applied.

With the exception of 2000, when we opted for an ineffective “organic coating,” and the period between October 2006 and April 2010, we used only zinc silicate coating without any additional antifouling until the boat was sold in fall 2016. Incidentally, the current owner of the boat has remained loyal to Inversalu.

Ocean waters of use

Since the importer had assured us back in 2000 that Inversalu was also suitable for use in warmer, southern waters, we decided to stick with this paint when we set off on our circumnavigation in 2004. This seemed plausible to us, given that the French navy also uses this coating, and some of its vessels operate in warm to tropical waters. The importer simply recommended applying a new coat of Inversalu more often than usual and otherwise cleaning the underwater hull mechanically from time to time. Over the years, we were able to gain experience with the characteristics of the paint in the North Sea and Baltic Sea, including the brackish water and freshwater sections of river Weser, and later in the North and South Atlantic, including the tropical waters of Brazil.

The real problem for bluue water sailors is that there are no sources of supply outside Europe, except in Australia (although I cannot comment on the current situation there). Shipping by air freight is naturally very expensive and causes problems for some airlines. When transporting by ship, depending on where you are, you have to expect considerable waiting times.

Antifouling Properties

The characteristics of the coating are based on the alkaline properties of the binder. Although this effect should not be overestimated, we were satisfied with the characteristics, so we continued to use pure Inversalu later on. In practice, we reapplied a coat of paint every second season and activated the paint in the intervening season by brushing it with a stainless steel brush, i.e., a brush pot on an angle grinder. If we felt that the coating had become very thin, we applied two coats of paint instead of one.

JUST DO IT after the underwater hull has been freshly brushed with a stainless steel pot brush and angle grinder. Whether for activation or as preparation for a new layer of paint, the result always looks the same. Also to see: the shaft with the Autoprop can be pulled past the rudder without any problems thanks to the offset arrangement of the shaft sleeve and the skeg.

In the North Sea area, with a berth in the Weser beyond the brackish water line, no significant fouling occurred in the years in which we applied a new coating. Only in the gap between the rudder and the rudder skeg did a few barnacles settle regularly. We attribute this primarily to the difficulty of accessing these areas: we were never able to paint reliably within the gap.

In the years when we only brushed the paint with a stainless steel brush, there was also hardly any growth at the end of the season, but a few barnacles always settled near the waterline and, strangely enough, in the area of the first bend in our hull.

Basically, there were no significant differences between the Baltic Sea and the North Sea. During longer stays in the Baltic Sea, depending on our activity, there was usually a so called "Baltic Beard", which was limited to the waterline area. In short, the more we sailed, the less the beard formed. This algae growth could be easily removed with a sponge.

It was noteworthy that even after prolonged periods in the water (several weeks), no growth appeared on the freshly applied new coat of paint. If the boat remained in constant motion, no growth occurred during the season: no algae development, nor any slimy algae film. By comparison, the untreated fixed propeller was usually well covered with barnacles, while the Autoprop, which was also untreated and used later, strangely enough showed less growth. Was it a question of the bronze used?

We were very satisfied with the anti-fouling properties of Inversalu under northern European conditions. In a visual comparison with other club ships, there were no inferior properties.

JUST DO IT ibei Tororo (Bahia de Todos os Santos, bei Salvador, Brasilien) auf den Strand gesetzt, um das Unterwasserschiff zu reinigen.

On the journey to warmer regions, there were initially hardly any differences in behavior compared to the North Sea and Baltic Sea. However, we took advantage of favorable opportunities to clean the underwater hull as soon as algae began to develop. In southern Portugal, we ran aground for this purpose, and in the Canary Islands, we briefly pessure-washed the underwater hull with the help of a travel lift belonging to a fishing cooperative.

During the Atlantic crossing, the underwater hull remained largely free of fouling. We were surprised that even the feared barnac-

les did not appear. However, this changed abruptly in Brazilian waters, between Salvador de Bahia and Santos. Here, we spent a long time in brackish water areas and moved relatively little. All we can say is: the water there is teeming with life. And on a scale that is almost unimaginable for us! It was some consolation that other sailors had similar experiences, regardless of the antifouling they used. Only those who had prohibited substances on their hulls fared better. However, the Inversalu proved helpful in one respect. Due to its mechanical insensitivity, it was easy to recruit a few helpers who scraped off the growth with our stainless steel spatulas for a few Reais (Brazilian currency).

After cleaning the hull, Anke inspects the through-hull fittings. These also need to be cleaned, of course.

Anodic Qualities

When we took over JUST DO IT, she wasn't equipped with any sacrificial anodes. Neither on the hull, nor on the shaft or propeller. Only two anodes with a connecting cable were lying in a locker. After the first two seasons in our ownership, the hull coating was intact and there were no signs of sacrificial wear in the underwater coating. As we had to switch to a different paint in 2000 due to a lack of importers, we installed two sacrificial anodes on the stern. The newly purchased Autoprop already had an anode fitted by the manufacturer.

Towards the end of the 2001 season, numerous superficial traces of electrolysis appeared evenly distributed across the entire underwater hull. These were small, more or less round areas of surface damage measuring 6-8 mm in diameter. The Inversalu coating had lifted in these areas and could be easily scraped off with a scraper. After a long search on our part, a ship's electrician friend of ours found the cause: a ground fault via the metal-coated exhaust hose of the Truma gas heater at the time. Once the ground fault had been eliminated, we applied two new coats of Inversalu as a precaution, added two more sacrificial anodes in the stern area on both sides of the skeg, and an anode on the shaft. At the end of the season there were no visible signs of electrolysis or sacrificial corrosion on the coating, and the sacrificial anodes were in almost pristine condition. The word “almost” is important. If there had been no traces of sacrifice at all, it would have been highly suspicious and would have been taken as an indication that something undesirable was almost certainly sacrificing itself elsewhere. We have retained this configuration with a total of six sacrificial anodes ever since.

Opferanode am Rumpf. Der dunkle Bewuchs unterhalb der Anode sind Babyentenmuscheln. In Brasilien hatten sie uns schließlich doch erwischt.

It is impossible to say with certainty whether the coating mitigated the electrolysis damage in the 2001 season. I am not an expert in this field. I would like to emphasize once again that the boat survived several seasons without sacrificial anodes (even under the previous owner) after being coated, which in my opinion speaks in favor of the anodic effect of Inversalu.

During our circumnavigation, the Inversalu demonstrated its ability to act as a large sacrificial anode in several locations. In 2006, the paint had become so thin in some spots that bare aluminum was exposed. The aluminum did indeed have a bare, almost shiny surface and showed no signs of corrosion. The sacrificial anodes also showed wear, but not to a spectacular extent. We explained the increased wear on the paint as being due to the high water temperatures

We experienced a similar phenomenon in the warm regions of the Pacific. There the anodes on the hull, shaft and propeller sacrificed themselves exceptionally quickly – the underwater hull was “sealed” with classic yacht antifouling at that time. The high material loss of the anodes did not return to normal levels until we reached the Mediterranean. In addition to the high water temperatures, another factor may have been that our antifouling, which was renewed in Peru at the end of 2007 and was supposed to be completely copper-free, was later found to contain copper after all.

If you want to go on a long voyage with Inversalu, this means that for trips to tropical regions you will need to carry a correspondingly large supply of Inversalu with you or organize a reliable supply, provided you want to continue using only Inversalu paint. An alternative is to use Inversalu as a kind of primer and then apply a yacht antifouling coating on top. This is how Bernard Moitessier did it in his day (big exclamation mark).

Spray, roll, or brush?

In principle anything is possible. When spraying care must be taken to thoroughly degrease the device. It is safer but more expensive to always use new components or to keep a set of spraying equipment reserved exclusively for Inversalu.

We prefer to do this by hand. The first coat after sandblasting or sanding the hull is best applied with a brush, rubbing it in, so to speak. Make sure you don't apply too thickly, but don't squeeze the brush too hard either. Only use high-quality, non-shedding brushes. Saving

Brazilian waters are vibrant with life. Here, you can see the growth in the area of the shaft support. The sacrificial anode on the left side of the image is mounted on the shaft support.

money here will make you unhappy. Not only does the heavy paint drip heavily from the brush, it literally pulls the bristles out of it´s clamp.

For all subsequent coats, we prefer foam rollers. In our experience, paint consumption is slightly higher with a brush and for the very first coat, than when using foam rollers on the following coats. Make sure you don't “squeeze” the rollers too much to achieve an even coating. Incidentally, the rollers had an amazing effect: as soon as a paint-soaked roller makes contact with the hull for the first time, the paint practically stops dripping. This makes working with rollers pleasant and relatively clean compared to brushes, and reduces “waste.”

Here too only use high-quality rollers and have a large quantity ready. Due to the weight of the paint, the foam begins to disintegrate relatively quickly. You will therefore need a large number of rollers. At the first sign that a roller is disintegrating, immediately use a new one. In our opinion, the expense of the rollers is well worth it, as they allow you to work faster and more evenly. “Fur rollers” are unsuitable.

Additional comments on processing and handling

For the initial application of a coating, it is ideal if the hull has been sandblasted beforehand. For aluminum hulls, only dry blasting can be used. After blasting, carefully remove all dust and apply the first coat immediately, preferably on the same day. After that, you can take a more relaxed approach to applying the subsequent coats. Regardless of whether it is the first or one of the subsequent layers, it is essential to ensure that the freshly blasted or painted surface does not come into contact with organic substances and is not touched or handled. Inversalu does not adhere to contaminants.

The zinc powder and water glass are mixed immediately before use. We recommend using a power drill and mixing paddle for this task, as mixing by hand is very tiring due to the weight of the zinc. In addition, a mixing paddle achieves a better mixing result. It is really important to re-stir the finished mixture frequently during work as the zinc content quickly separates again due to its specific weight. It is best to mix the paint in a bucket and only fill smaller consumption-appropriate quantities into a trowel tray. This makes it easy to re-mix the paint in the bucket.

In addition, you should adhere reasonably closely to the specified coating intervals (maximum resting time between coats) and, above all, the minimum and maximum waiting times before launching the boat. The recoating intervals can be kept very short. Once it comes into contact with the hull, the paint dries amazingly quickly. As soon as one coat is touch dry the next coat can be applied. Two coats in one day are no problem. (Well, depending on the size of the boat, of course.) At high outside temperatures you should expect to use more paint, especially if the metal hull is heated by the sun. The quick-drying paint will then no longer be easy to apply. It is therefore advisable to provide shade for the hull when working outdoors. It is also advisable to avoid condensation on the hull, as the fresh paint should not come into contact with water within the first 48 hours.

The paint does not adhere to plastic and hull colors (above-water hull). Inversalu usually drips off the paint of the above-water hull – if there is any, which is not always the case with aluminum boats. If not it can usually be wiped off with a damp cloth or, in the worst case, scraped off with a wooden scraper (or fingernail). So, not much care is required when taping if there is an intact above-water paint with a clean, straight waterline. When JUST DO IT was still painted completely, we usually did not bother masking off the waterline! Conversely, more care is required if you want or have a bare aluminum above-water hull. Alternatively, you can apply a foil waterline afterwards. When repainting later, the foil strip can again save you the trouble of masking.

Plastic buckets and scraping trays are easy to clean; residues simply fall off or can be knocked off and rinsed off with water.

Transportation and storage

Even though the components are considered reasonably safe and environmentally harmless according to technical data sheets two things must be taken into account: Zinc powder is flammable and can produce flammable gases when it comes into contact with water. Moisture penetration can also cause the powder to deflagrate. This happened to me once in a garage that was dry. The lid of the canister in question was blown off and the contents were scattered in the surrounding area. It wasn't a violent or destructive explosion, but it was a nasty mess. Therefore, particular caution should be exercised with opened containers. The plastic containers commonly used today reduce this risk. Dry storage is therefore important. For storage on board, we recommend additionally sealing the containers in strong plastic wrap.

Due to constantly changing regulations, it is unclear whether air freight shipping is still possible today. It is best to contact Meta-Werft and request direct shipping to the destination country. The German importer has now abandoned this transport route. However, due to the product's long shelf life, it is not a problem to carry sufficient quantities.

Conclusion

Our coating, which was renewed in 2010, has proven itself over two Baltic Sea/North Sea seasons, as it has in all the years before. After the boat was left on land for too long in 2011 following the removal of the oxide layer, there was more fouling than usual on the waterline and on the side plates of the keel towards the end of the season, as well as some barnacles on the stern. It became clear that the intervals and service life specified by the manufacturer should be adhered to as far as possible. And this is how it ultimately appeared in the following years until 2021, as the current owner confirmed to me.

All in all, we chose Inversalu again after our circumnavigation as we believe its properties make it ideal for aluminum boats. For long voyages, I would recommend choosing a product depending on the sailing area. Those who mainly sail in cooler waters are well advised to use the Inversalu coating alone. However, those who mainly want to travel the barefoot route with its warm waters should consider whether they want to use a different system, either in addition to Inversalu or as an alternative.

We on our own would also stick with Inversalu for tropical areas but carry a larger supply.

Note:
For Years the Meta Company named their products INVERSALU for aluminum boats and METAGRIP for steel boats. Meanwhile they use the term METAGRIP for both. Therefore be careful to order the right coating.

More information you will find here
General information:
https://meta-yachts.com/en/produit/metagrip/
Technical Information:
https://meta-yachts.com/wp-content/uploads/2021/02/METAgrip_Technical-Note.pdf

Bremen, May 2012
updated Willemstaad, Curaçao, November 2025

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