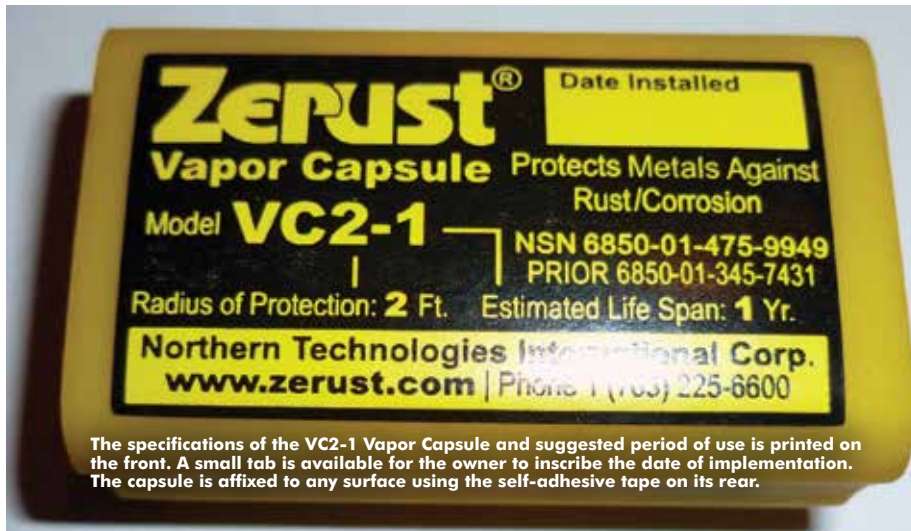


# Zerust desiccants and corrosion-inhibition products

by Con Kapralos



The specifications of the VC2-1 Vapor Capsule and suggested period of use is printed on the front. A small tab is available for the owner to inscribe the date of implementation. The capsule is affixed to any surface using the self-adhesive tape on its rear.

Corrosion of metallic components is an issue which product designers are faced with on a continual basis. Water has the ability to react with any element or compound given the correct conditions and any metallic component or even chemical substance that is exposed to moisture will undergo physical and chemical change.

Steel will quickly change from the ferric ion to the ferrous ion in the presence of water, and it is the ferrous ion which gives rust its brown coloration. Some chemical elements and compounds used in day-to-day manufacturing processes also need to be stored in conditions where water is absent - ideally under a desiccant or gas such as nitrogen. As much as we rely on water in our everyday lives, even in trace amounts, it has the potential to create issues when dealing with materials that can react with it.

Zerust Excor is a world leader in the manufacture of high-performance desiccants and corrosion-inhibition products aimed not only at the commercial and industrial sectors, but also for use by the general consumer. Manfred Gross, the managing director of Zerust Excor in Australia, is serious about protecting our everyday assets from the ravages of corrosion, whether that is computer circuit boards, fishing gear, fire-arms, optical goods or even motorcycles.

Working in a scientific background with an understanding of the role desiccants play in the laboratory, I am familiar with the different types available. Manfred sent for review two of Zerust's most popular products: the VC2-1 Vapor Capsule vapour emitter, geared towards the home consumer; and the Aquasorb ZX high-performance desiccant, aimed at the commercial and industrial sectors, but also applicable to use around the home. The products can be used separately or together.

## The VC2-1 Vapor Capsule

The Zerust VC2-1 Vapor Capsule is quite compact in size, measuring 50x30x20mm. It has a yellow hard plastic outer casing, which contains the item information, as well as a



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small tab for inscribing the installation date. The ends of the capsule have foam plugs, which sandwich the emitter material inside. The rear surface of the capsule has a strip of self-adhesive tape, which enables the VC2-1 Vapor Capsule to be securely positioned to any surface, such as plastic, metal, wood, glass or anything else.

The information on the front of the VC2-1 capsule states that it has a protection radius of 2ft (60cm), making it ideal for any smaller areas, such as storage cabinets, tool chests, car glove boxes and similar. Zerust manufactures Vapor Capsules in larger sizes to suit other needs. The VC2-1 has an estimated lifespan of one year and ideally after that time, the unit should be replaced with a new one, in order to ensure maximum corrosion protection.

Discussing the VC2-1 product with Manfred, we decided to set up a long-term trial of the capsule in preventing rust using two 1010 steel coupons as test samples. These small pieces of steel, measuring about 100x50mm, would be placed in similar locations (cabinet type, room temperature, humidity), but only one steel coupon would have the VC2-1 capsule within 2ft of its location. The other steel coupon would have no capsule within its proximity.

The steel coupons were left in their position for a total of five months, with the proof of the effectiveness of the capsule seen in the accompanying photos. For the first few months, there was no noticeable difference in the steel coupons, but as winter set in and moisture content in the atmosphere increased, the steel coupon without the VC2-1 capsule slowly started to show signs



of corrosion. The steel coupon with the capsule was still nice and shiny, with no traces of corrosion.

After five months, the unprotected steel coupon had a moderate amount of rust on its surfaces, whereas the steel coupon that was protected with the capsule was still rust-free - only the shiny appearance had abated and the coupon was more of a dull grey color with some slight brown tinges evident.

### The Aquasorb ZX

The Aquasorb ZX is a high-efficiency desiccant with strong absorbency potential, which primarily consists of magnesium chloride and a fixative. This desiccant is of a totally different mode of action compared to traditional silica gel desiccants, in that once it has absorbed moisture, it solidifies. It is able to perform in a wide range of temperature and humidity levels and has a maximum absorption capacity of 210 per cent, which is seven times higher than conventional desiccants such as silica gel.

The Aquasorb ZX comes in a range of sachets sizes, including 50, 100 and 150g. Its areas of application include the steel industry, electronics and precision instrumentation, logistics and merchandising. Sent for review was the 150g sachet, which measured 185x152mm in size. The sachet is constructed of a heavy-duty porous paper, which retains the desiccant well without any loss of contents. Moisture can easily pass through the packaging to react with the

desiccant.

I decided that my toolbox and fishing tackle box would be good test candidates for the two sachets. Most of my tools are electrochemically plated and therefore not affected by corrosion, so the Aquasorb ZX was only placed there as an 'insurance' measure. However, my fishing tackle box contains various lures, which are not cheap by any means. I always rinse any lures that I have used with fresh water and dry them thoroughly, but more often than not, residual moisture can start to rust the split rings and treble hooks on my lures. I placed the sachet in the box for five months and am happy to say that nothing has rusted in the box since then.

Obviously, the Aquasorb ZX desiccants are aimed squarely at the commercial and industrial sectors, but they are also adaptable for use around the home and garage. What I must stress is that the products are supplied with a Material Safety Data Sheet (MSDS) and before using the Aquasorb ZX (and as you would before using any chemicals), users should thoroughly read the MSDS and become aware of the nature of the material and hazards associated with it.

### Summary

Zerust Excor products can help in preventing corrosion and condensation damage in your valuables, whether they are household appliances, sporting goods, electronic items, optics or tools within your garage or workshop. The products have anti-corrosion applications to suit all needs and requirements.

For more information, contact the Zerust team on 0417 814 877 or visit [www.zerust.com.au](http://www.zerust.com.au) ●

**As with any products containing chemical compounds, Material Safety Data Sheets are supplied and inform the user of the nature of the product, any risks or hazards it may pose and how to best handle and dispose of the product.**