
APPLICATION NOTES



Section Name	Product Application Notes – Underwater.
Last Updated	09/07
Aim	Document the application procedure for SCUBAPOX underwater-applied products.
Scope	Covers all aspects of underwater application (material preparation and application).
References	

Underwater

SCUBAPOX underwater-applied coatings have been formulated to overcome typical problems encountered with underwater application and have a long, established record of success in the industry. We manufacture potable water approved underwater coatings (1715/1725), as well as a range of adhesives and sealants that, along with the coatings, are eco-certified for improved safety to both man and environment.

Common applications for SCUBAPOX underwater epoxies include leak/crack repair in tanks, reservoirs and pools; sealing cracks and joints underwater; corrosion protection for piers, pontoons and hulls (inc. saltwater and cathodic protection); and, attaching, sealing and repairing common household and industrial materials. The following document details the recommended application procedures when using SCUBAPOX epoxies underwater.

1 Application Tools

Before application begins, the surface must be prepared thoroughly. Read Surface Preparation Notes for recommended procedures.

Underwater application is typically more compatible with “spreading” type tools rather than brush, roll or spray techniques. Rollers tend to leave a very rough surface and brushes can be wasteful.

The following application tools have been found to be effective in smaller areas:

- Brushes – are useful in a combination spreading/brushing motion. To be effective they have to be stiff – extra stiffness in a standard brush can be obtained by either cutting off half the length of the bristles, or wrapping duct tape around half of the length of the bristles at the handle end. SCUBAPOX 1715 is suitable for brushing underwater.
- Painters Mitts or “Fuzzy” Gloves – are mitts worn over a rubber glove. Underwater-applied products can be lifted from their pail and simply smeared onto the surface with good results. This method works especially well for pipes or irregular shaped surfaces.
- Spreaders – such as plastic, straight-edged spreaders used for applying wall joint compound are ideal for larger, flat areas.
- Customised Spreaders – spreaders can be customised by wrapping carpet scraps around a plywood base and stapling in place. A 20cm x 10cm spreader with a handle on top makes an excellent tool for applying larges volumes. The carpet serves as a cushion and reservoir to smooth out the application, especially over welds.

For larger areas, the above methods may become too time consuming and there is little choice but to use a power roller instrument. This type of equipment is similar to a standard plural spray rig, however it forces the product through a roller head unit rather than a nozzle.

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2 Application Procedure

When applying with hand tools or gloves, it is best to work with smaller, more manageable volumes. Working underwater requires a more steady and slow approach and therefore it will be very difficult to apply an entire kit before it reaches the end of its pot life.

Mix a maximum of 2-3 litres on the surface in a separate bucket – if the application is at a depth requiring the services of a diver, they can hang the bucket from their belt and free up both hands for navigation and application. When applying it is important to work steadily and slowly. Allow the product to sit on the surface for a short time before beginning to brush, smear etc. The weight of the water tends to tear off loose product at the edges if the applicator is too vigorous - slowing down and working methodically will yield a better job with less wastage. Under some circumstances, it will be found that two or three passes over the surface may be required for the product to “reach down” and adhere strongly.

Freshly applied material is immune to wave action at the surface (SCUBAPOX 1725 in particular) and will only be damaged by significant turbulence before curing. Under normal water conditions of approximately 26°C, products will have hardened appreciably after about 6 hours. Once the product has reached the stiff, “gummy” condition it will be resistant to damage from flowing water and gentle impact.

Some other useful suggestions and observations regarding hand-tool underwater application are offered below:

1. In cold conditions/water it is worthwhile to pre-heat the product tins in hot water to deliver a quick and effective reduction in viscosity. This can be done in an esky or any other available container. By necessity, underwater products are rather viscous, paste-like products that can be difficult to apply when temperatures fall below 15°C. If the water is too cold, the product will display a tendency to roll up on itself, which makes brushing/smearing the product a difficult task.
2. Only mix smaller, manageable amounts and while the product is still warm quickly take under and apply. A stiff instrument will be needed to mix even small quantities due to the viscosity of underwater products, e.g. a metal spatula. Avoid mixing in air as much as possible. Do not use the same tool to remove product from the base and cure containers, even if wiped thoroughly, as this could cause cross-contamination of product.
3. As always, the product must be mixed thoroughly until the colour and texture reaches a good consistency.
4. When applying the product, allow it to sit for a short time (so it can begin displacing the water) and then begin to smear/work the product to the specified areas.
5. If applying at large depths onto a crack for example, the static pressure of the water can force the product through the crack with the water. In these situations, it can be helpful to “plug” the gap first with a “modelling clay” product before applying over the top.
6. If gluing in an area that can't be inspected afterwards (e.g. under a patch), retain a mixed sample so that you can check that the product has cured properly, i.e. correct ratios were used and mixed thoroughly.