SEALANTS FOR EXTERIOR FINISHES

TECHNICAL BULLETIN TB-9

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This issue supersedes all previous issues

INTRODUCTION

This bulletin provides background information relating to sealants and their application when used in conjunction with the range of exterior finished steel products produced by BlueScope Steel Limited.

The sealant industry in Australia produces a wide variety of building sealants which together embrace a multitude of end use applications and an even greater range of specific conditions.

BlueScope Steel considers that **NEUTRAL CURE** silicone rubber sealants form the most suitable class of sealants for the applications in which its products will be exposed.

Neutral cure silicone rubber sealants meet the necessary requirements of:

- Providing good adhesion to the clean surface of BlueScope Steel exterior finished products.
- Not requiring a primer except in extreme service conditions. Resisting extremes of both heat and cold while retaining good flexibility.
- Providing very high resistance to the damaging effects of ultra-violet rays (in sunlight) hence achieving long life compatible with the performance of BlueScope Steel exterior finished products.

Any other generic type of sealant considered should possess similar properties to neutral cure silicone rubber if long term performance is required.

It is most important that only **NEUTRAL CURE** silicone be used with steel products. Other very common silicone sealants, while being ideal for other materials, liberate by-products during curing which can be corrosive towards the protective coatings applied to steel. These often smell of vinegar or ammonia.

If in doubt contact a BlueScope Steel state sales office.

The past practice of approving sealants has been discontinued.

Use of sealants means that fastening, whether by integral forming such as lock-seaming or by individual fasteners, is necessary where metal to metal joining is involved. In the latter case the fasteners must not be spaced at more than 50 mm intervals to ensure tight neat laps that are free from bulges.

Fastener materials must be compatible with the steel coating in respect of both life and corrosion considerations.

Note: Copper and alloys of copper, including monel, are not recommended.

SIZE OF FASTENERS

There have been reports of aluminium blind rivets sheared by expansion and contraction of the joined members. It is strongly recommended that allowance be made for thermal movement and that larger diameter rivets be chosen if aluminium is used. Refer Technical Bulletin TB-16.

SIMPLE MEANS OF SEALING, FASTENING AND JOINING

1. Overlapping surfaces must be clean. A sealant width of 25 mm is considered to be ideal for a lapped joint.
2. After cutting and ensuring correct fit, the parts should be separated and a bead of sealant extruded within the lap along the line of intended fasteners.
3. Drilling and fastening are completed after reassembly ensuring that the fasteners will pass through the sealant. Solid or sealed fasteners are recommended, otherwise sealant must be used to seal the hollow centres of non-sealed pull-mandrel ("pop") type rivets.
4. Excess sealant should be removed for neatness.

   (a) An ice block stick or other form of spatula is suitable to remove excess whilst it is uncured.

   The large open end of an empty sealant cartridge is ideal for rapid tidy sealant removal - the cartridge is used as a scoop.

   (b) A turps rag can clean up effectively, or

   (c) the cured sealant can be cut away later. This prevents silicone contamination of the surface.

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PAINTING OVER SILICONE CONTAMINATED SURFACES

If a surface is contaminated it will cause "sissing" or dewetting of the paint.

Light abrasion is required to remove traces of silicone. Care should be taken to avoid damage to the protective exterior finish of the steel surface.

A further method is to drastically reduce the quantity of paint being applied to the extent that only a very thin coat is used. The second coat will adhere reasonably well.

A better alternative is to use a paintable silicone which will be very useful where post painting is required. Be careful with paintable silicones as water based varieties could wash out of joints prior to curing.

TANK MAKING

For information on the use of sealants in the manufacture of tanks refer to Technical Bulletin TB-3 or contact the nearest BlueScope Steel State Sales Office.

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