

TDS05 GUIDELINES FOR THE CORRECT APPLICATION OF REGALEAD PRODUCTS IN INSULATED GLASS CONSTRUCTION – FEBRUARY 2010

RegaLead have developed an extensive range of self-adhesive lead profiles, filmic products and bonded glass bevels to simulate traditional decorative glazing. The correct application of all these products when constructing insulated glass (IG) double glazed units will ensure that the maximum service life is obtained and the risk of premature component failure is avoided.

1 LEAD PROFILES

A. APPLICATION TO GLASS

The pre-cleaning of the glass substrate is equally as important for the application of the self-adhesive lead profiles as it is for the IG sealant material used in the construction of the double glazed unit itself. Glass cleaners that are approved by RegaLead, such as UVTek Glass Cleaner or cleaning materials that are compatible with the IG sealant are the most suitable products.

The optimum performance for all RegaLead self-adhesive lead profiles will be obtained by:

- Ensuring that the glass is always clean.
- Applying the lead profile in ambient air temperatures above 15°C.
- Applying even application pressure to the lead by using a rubber faced roller.
- Boning down and sealing all the edges of the lead profiles to the glass by using a RegaLead Boning Tool.
- Ensuring that there is a minimum of 0.5mm clearance between the aluminium spacer frame and the applied lead profile. (See diagram 1)
- Avoid excessive stretching of lead profiles during application which is indicated by an 'orange peel' distortion at the surface.
- Damage to all RegaFast coatings in Brass, Antique Platinum and Ebony can occur under such conditions causing deterioration of the coating retention, odour and performance.

Under normal conditions, the glass can be handled five minutes after the application of lead profile. Guidelines for acceptable adhesive levels are now available in the new standard for Insulating Glass Units EN 1279.

Outline details are available from RegaLead of the test method for self-adhesive lead profiles. All RegaLead profiles can exceed the EN1279 standards when applied correctly and give a minimum expected service life of 10 years in respect of adhesion to glass.

B. RECOMMENDATIONS FOR LEAD PROFILE CONFIGURATION

Experience over many years suggests that the maximum performance for RegaLead self-adhesive lead profiles will be obtained when applied as in diagram 1. Reduced performance levels and risk of failure are associated with application configurations shown in diagrams 2 – 4.

Diagram 1 Correct application for maximum service life

Lead profile applied to external glass surfaces (1) and(2)

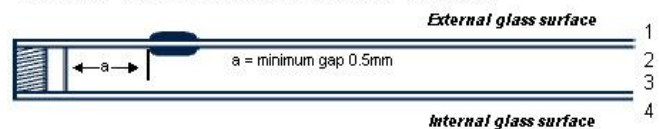


Diagram 2 Acceptable application

Lead profile applied to external glass surface (1) only



Diagram 3 Not acceptable

Lead profile applied to external glass surface (2) only
(UV light can degrade adhesive performance)



Diagram 4 Not acceptable

Lead profile applied to internal glass surfaces (3) and (4) only
(UV light can discolour lead on surface (3) and condensation on surface (4) can corrode lead profile)



NB: Diagram 2 – (There are potential visual issues with coated Brass, Antique, Platinum and Ebony profiles at the adhesive interface).

C. CORRECT GLAZING OF LEADED GLASS PANELS

The use of RegaLead lead profile on both single pane and IG units is generally problem free. However, we recommend that you should note information listed below in order to avoid any potential compromising of performance for length of service life and decorative effect.

c.1 Wet glazing using Acetoxy Silicone Sealants

Silicone sealants are widely used to seal between frame materials and glass panels. Unfortunately, the most commonly used silicone sealants, the acetoxy type which are recognised by their 'vinegary' odour, can cause corrosion on the lead profile surface and also to the coatings on RegaFast Brass, Antique, Platinum and Ebony. The damage occurs as the sealant cures over a period of days especially when the joint and panel are enclosed by outer packaging.

To avoid this problem you must use a 'Neutral Cure' silicone sealant which will not cause any metal corrosion. Examples of suitable 'Neutral Cure' silicone sealants are:

- Rhodia 7T
- Dow Corning 796

This list is by no means exhaustive and if in doubt you should contact your sealant supplier for advice. Details of sealant manufacturers, along with contact information, are listed in Section 4 of these 'Guidelines'.

c.2 High movement window systems - i.e: uPVC woodgrain types

The differential movement between the glazed panel and frame material can vary greatly. Windows made from uPVC in dark colours, and windows in south facing locations undoubtedly face the greatest potential risk of problems regarding lead profiles due to thermal expansion.

In applications where lead profile may come into contact with rubber or plastic window gasket materials there needs to be a clearance to allow for any movement of the leaded glass panels, without causing any detrimental effect to the lead profile. You should seek advice from the window system supplier about the best gasket types. Also remember that although RegaLead lead profiles are supplied in a thickness range of 0.7mm to 0.85mm, where they cross over the actual combined thickness can be up to 1.75mm, and this needs to be accommodated by the glazing detail.

Obviously if any lifting of the lead profile does occur after a relatively short period of time (say within less than six months) the tolerance issue must be addressed. In extreme cases it may be necessary to undercut the lead profile to within the area bounded by the gasket material typically with a 0.5mm clearance.

2 REGAFILM PRODUCTS

This range of predominantly polyester film products utilises solvent based acrylic pressure-sensitive adhesives which contain UV stabilisers to obtain excellent adhesion and long term film clarity in order to simulate the beauty and effect of stained glass.

Extreme care should be taken during the application of the RegaFilm to avoid air entrapment or ingress of dust particles which will impair the visual quality of the finished result.

The optimum performance for RegaFilm products will be obtained by:-

- Ensuring glass is always clean
- Ensuring films are applied at air temperatures above 15°C
- Maximising surface contact of the film by using either a water transfer method or applying high pressures during application
- Avoiding windows between lead profile and films
- Applying RegaFilm only to surface (2) of IG units (see diagram 1)

3 REGABEVELS

It is now common practice to decorate IG units with bevelled glass that has been bonded in place using UV curing adhesives.

The application of the bevelled glass using the UVTek Curing Benches and UVTek Adhesives have reduced the potential quality issues to a minimum.

Additional advice is available from RegaLead regarding the most suitable equipment and adhesive from the UVTek range.

Normally the application of bonded bevels is only to surface (1) of IG units (see diagram 1). This avoids any potential problems of adhesive gassing in the unit cavity.

4 FURTHER TECHNICAL INFORMATION

a. IG Sealant Suppliers

Bostik Findley UK

**Telephone: 0116 251 0015
Fax: 0116 253 1943**

Adshead Ratcliffe & Co Limited

**Telephone: 01773 826661
Fax: 01773 821215**

PRC – Desoto International

**Telephone: 01388 772541
Fax: 01388 774373**

b. Silicone Sealant Suppliers

Henkel Sealants Limited

Telephone: 01606 594600

Geocel Limited (Dow Corning Sealants)

**Telephone: 01752 334350
Fax: 01752 202065**

c. Test Specifications

British Standards Institute

**Telephone: 020 8996 9000
Fax: 020 8996 7001**

c. Test Specifications

Glass & Glazing Federation

**Telephone: 020 7403 7177
Fax: 020 7357 7458**

These guidelines are published in good faith and are based on our current experience and are not exhaustive. Further advice and information is always available directly from RegaLead, telephone +44(0) 161 946 1164.

