

## COMPATIBILITY OF GLAZING COMPOUNDS & SEALANTS WITH IGU EDGE SEALANTS

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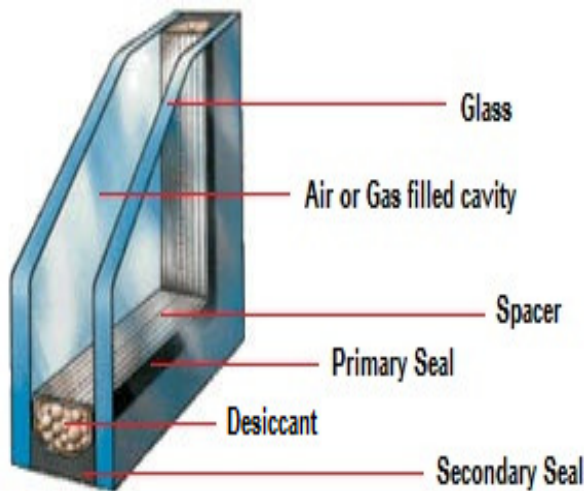
### INTRODUCTION

Care should be taken when selecting materials to be used when glazing insulating glass units. Not all materials are compatible with IGU edge sealants or butyl strip sealant.

All glazing materials and products contained within the Glazing Systems provided by Hodgson Sealants are compatible with each other and all known IGU edge sealants when used as directed.

### INSULATING GLASS UNITS

Insulating Glass Units (IGU), also known as Double Glazing (DG) are double or triple glass panes separated by air or another gas filled cavity in order to reduce heat transfer and energy loss through a window or door.



When manufacturing IGU's using the 'dual seal' method, a spacer system is sandwiched between glass panes. Aluminium spacers are filled with a desiccant, absorbent medium or molecular sieve material in order that the cavity remains dry. Any moisture present would have the potential to condense on the glass in cooler conditions, which would give a hazy effect. The spacer is initially bonded using a primary sealer. After construction the unit is completed by the use of a secondary seal. The primary and secondary seals may not necessarily be of the same sealant type, they are often of different chemical and curing types. Chemically curing or moisture cure sealants based on silicone, polyurethane or polysulphide technologies may be used in conjunction with hot melt / thermoplastic types such as hot melt butyl or polyisobutylene (PIB).

The dual seal method is the most popular method of manufacture, however, methods do exist where a 'single seal' is used. These include products such as Swiggle Strip, which is a preformed spacer system and sealant with desiccant. These methods do normally employ thermoplastic / hot melt technologies. The single seals are still prone to incompatibility issues.

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### POSSIBLE COMPATIBILITY / MIGRATION ISSUES WITH GLAZING MATERIALS

Materials of a different type have the potential to be incompatible with each other, either when in direct contact or in the close vicinity of each other. Incompatibility can manifest in different ways, however, when discussing issues in glazing we are in the main talking about plasticiser and/or solvent migration. This is where one or more component from one material can be transferred (migrate) freely into the other. Migration of these components can alter the physical properties and performance of the other; which can lead to failure. The secondary, primary or single seals used to construct IGU's are prone to migration issues caused by some components in the materials used for glazing. These components are normally hydrocarbon solvents, plasticisers or oils that can dilute / liquefy the IGU seals leading to premature failure (blowing, fogging) of the unit.

### THE EFFECT OF INCOMPATIBLE GLAZING MATERIALS

Silicone sealants are often used to 'fully bed' units into timber frames as seen in Hodgson Sealants B5, B6 and R1 Glazing Systems; which are available at [www.hodgsonsealants.com](http://www.hodgsonsealants.com) or upon request. These systems all feature Silfix U9 to bed the unit in, in conjunction with other glazing materials depending on the specific application requirement.

Silfix U9 is a low modulus neutral cure silicone specifically supplied by Hodgson Sealants for the purpose of bedding IGU's. There is a popular misconception that any 'LMN' silicone can be used for this purpose. This is not the case; many LMN products are often extended with solvents and plasticisers in order to make the product cheaper. These are the same components that cause compatibility / migration issues and subsequent unit failure. It is for this reason that we would only recommend Silfix U9 for this purpose.

**The term 'LMN' describes the silicone type, it does not relate to the quality or purity of the product or its suitability for a certain application. For further information regarding sealant types; please read our Technical Information Sheet entitled 'FEATURES, BENEFITS AND LIMITATIONS OF REACTIVE / MOISTURE CURE SEALANTS AND ADHESIVES OFFERED BY HODGSON SEALANTS LTD.'**

The time it takes for these effects to be noticed can vary greatly. This depends upon the type and quantity of the incompatible component. This can be weeks, months or sometimes years before the damage becomes evident.

#### What does LMN mean?

LMN stands for Low Modulus Neutral cure.

The modulus of a sealant describes how stiff or elastic it is. A low modulus sealant requires less force to be stretched; a high modulus requires a greater force. As such, a stiffer material will have a higher elastic modulus, a softer material will have a lower elastic modulus.

A neutral cure silicone will evolve only pH neutral elements whilst curing (normally alcohol) which is not corrosive. This is unlike the acetoxy / acidic cure silicone sealants available, these evolve acetic acid during curing (these types produce a strong vinegar smell) and should not be used for the bedding of IGU's into frames.

Please note that butyl strip sealants such as Flexistrip and Flexibond as supplied by Hodgson Sealants are also prone to degradation in the same manner as IGU sealants. Only compatible materials as recommended by Hodgson Sealants should be used in conjunction.

Putties based on natural oils such as linseed oil should not be used as a bedding material for IGU's, natural oils can have a similar effect to hydrocarbon materials over time. For this reason, hand applied putty (Linseed Oil, Multi-Purpose, etc.) should not be used as a bedding material for IGU's or when they are expected to be in contact with edges sealants.

*The information given in this technical information sheet is based on laboratory tests and experience which we believe to be correct. Properties quoted are typical and do not therefore constitute a specification. In view of the wide range and variability of substrates, we would advise that our product should be tested by the user to establish suitability for its intended application. E & OE.*