

SUBMITTAL FORM

Contract: EC20-007566_The Factory

Doc Number: MF-PRA-WH-XX-TS-X-30-0036

Revision: C01

Purpose: S4 : Construction Approval

Issue Date: 06/12/22

No of Pages: 30

Doc Title: WP 3000 - Glass Compliance Document – Foyer Glazing_EWS-102 Doors_ Glass Ref GL04

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1. Introduction

In line with the project performance requirements provided within the instructed specification documents, Lindner Prater are proposing the use of products contained within this Technical Submittal. Please provide approval of these proposals to allow us to proceed with the procurement of these items utilised as shown on our associated drawings submitted under separate cover

2. Project Glass Specification

The specification for the glass is set out within

MF-RYD-XX-XX-SP-A-00-044_Ver3_H11 Curtain Walling_110B

H11-313B – Soft Body impact Loads – glass to BS EN 12600

Compliant - Glass is to 1(B)1

H11-380 - Solar & Light Control

Refer to red line specification (G Value)

LT Value - Target 98%_ Glass Performance = 0.81

RFI-00073 - Internal Screens & Door Glass

Confirmed Glass Units contain Iplus 1.1 coating as Approved Glass Samples GL03, GL04

BDP Thermal model to be re-run

MF-RYD-XX-XX-SP-A-00-093_Ver2_L40 General Glazing

L40-111 - Preglazing

Details of sealing manufacturing tolerances see Section 9

Glass transported on A-Glazing racks suitable for fork/ crane lifting offloading

Binding period for Stillage's: maximum 2 months.

L40-140A - Material Samples

Refer to Sample Submission MF-RYD-XX-XX-TS-X-30-0073

L40-145 - Glazing Appearance

Compliant with Hadamar 2019

L40-150 - Workmanship & Position Generally

Compliant

L40-152 - Preparation

Compliant

L40-155 - Glass Generally

Compliant

-BS EN ISO 12543 - for laminated glass & laminated safety glass

Edge effects and delamination for laminated glass edges allowable up to 15mm/10 years.

L40-160 - NA

L40-165 - NA

L40-180 - NA

L40-181 - NA

L40-190 - NA

L40-197 - Thermal Shock

Compliant refer to Section 10 – Thermal Safety Assessment

L40-198 - Security

Aluminium Schuco Systems are tested to EN 1627 not LPS 1175

Glass complies with P4A rating under EN 356.

Ryders to confirm overall security following review with client team (RFI-00012)

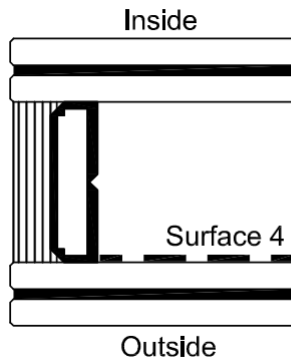
L40-630 - Manifestation Statutory / Decorative - Refer to red line specification

3. Proposed Glass Specification

The glass specifications for the project consist of the following main types:-

Glass Type: GL04 Vision Units

Outer Leaf:	44.4 Heat Strength & Laminated Acoustic Low Iron.
Cavity:	24mm Chromatech, Argon Filled, Silicone seal, standard bite
Inner Leaf:	44.4 Heat Strength & Laminated Acoustic Low Iron
Coating:	Ipasol Neutral 1.1 coating to surface 4 of IGU



Edgework

Arrised

Calculation SommerGlobal

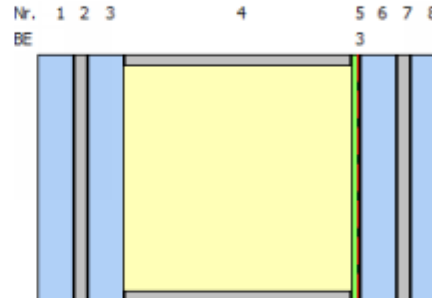
AGC INTERPANE

Project: The Factory, Manchester

Position: EWS102 Doors

Layer composition (outside to inside)

Number	BE	Description	mm
1		Planibel Clearvision	4.00
2		Saflex® Acoustic - QS	1.52
3		Planibel Clearvision	4.00
4		90% Argon	24.00
5	3	iplus 1.1 (en=3%)	
6		Planibel Clearvision	4.00
7		Saflex® Acoustic - QS	1.52
8		Planibel Clearvision	4.00
			43.04



Transmission, reflexion, absorption

 $\rho_v = 0.12$ (Light reflection factor outside) $\rho'_v = 0.12$ (Light reflection factor inside) $\rho_e = 0.24$ (direct radiation reflection factor outside) $\rho'_e = 0.24$ (direct radiation reflection factor inside) α_e 1 = 0.15; 3 = 0.06 (direct radiation absorption factor) $T_{UV} = 0.00$ (ultraviolet transmittance) $T_v = 0.81$ (Light transmission) $T_e = 0.54$ (direct radiation transmission factor) $R_a = 99$ (general color rendering index (CRI))

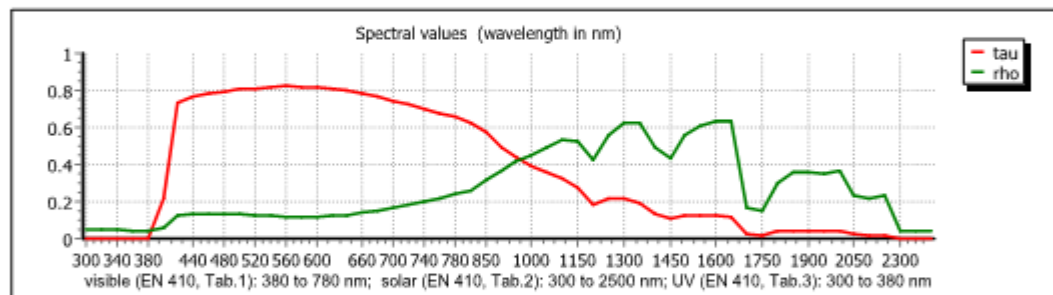
EN 410

SC = 0.69 (Shading Coefficient, g/0,87)

b-Faktor = 0.75 (VDI 2078, g/0,80)

 $q_i = 0.06$ (secondary heat inside) $g = 0.60$ (Total energy transmission factor)

EN 673 Installation angle = 90° vertical

 $U_g = 1.1 \text{ W/m}^2\text{K}$ (Heat transfer coefficient)
Corrected emissivity according to EN 12898:2019EN ISO 52022-3 $T_e = 5.00 \text{ }^\circ\text{C}$ $T_i = 20.00 \text{ }^\circ\text{C}$ $g_{th} = 0.035$ (Thermal radiation factor) $g_c = 0.026$ (Convection factor) $g_v = 0.000$ (Ventilation factor) $E_s = 300.00 \text{ W/m}^2$ System height = 1.50 m $h_{c,e} = 18.00 \text{ W/m}^2\text{K}$ $h_{c,i} = 3.60 \text{ W/m}^2\text{K}$ $q_i = 0.060$ (secondary heat inside) $g_{tot} = 0.60$ (Total energy transmission factor)

Fluctuations of light and radiation technical values for the chemical composition of glass and manufacturing process possible. Function values take into account the permitted tolerances according to the product standards. The calculation-result does not give information about the technical practicability of this construction. We point out that the calculations were created on the basis of the manufacturers' spectral data. The company Sommer Informatik GmbH assumes no liability for the integrity of the manufacturers' data. For the declaration of performance the manufacturers' data placed at the disposal has to be confirmed separately.

EN 410, EN 673, EN ISO 52022-3, EN 12898:2019

ifl-certified IT validation report no. 410 42167 (status as of 11/2009)

Registered for: Interpane Glasgesellschaft mbH - Vincent Smith

SommerGlobal 7.2903

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ADMIN

29/04/2021 - 14:56:41 | 1 / 1

5. Spacer Bar & Cavity

All insulated glass units will be manufactured with [insert spacer bar trade name]

- The spacer bar colour is BLACK
- All units are 90% ARGON FILLED

Traceability

All insulated units spacer bar will have a marking specifying the following information:-

- Processor
- IGU Standard
- Manufacturing date
- IGU Build-up
- Cavity Fill
- Dimensions
- Batch/Order No.

Primary Seal

KOMMERLING GD 115 – refer to section 13

Secondary Seal

DOW CORNING 3363 – refer to section 14

Desiccant

SILIPRITE NK 30 BEADS – refer to section 15

Edge Deletion

Interpane statement - refer to section 16



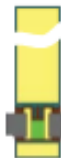
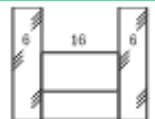
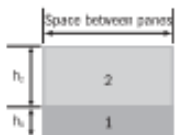
Data sheet Psi values for facade profiles

based on determination of the equivalent thermal conductivity of spacers by measurement

ROLLTECH

ROLLTECH A/S – an Alu-Pro Group Company

 Rolltech A/S
 W. Brøels Vej 20
 DK - 9800 Hjørring


	Product name	Spacer height in mm	Material	Thickness d in mm
Cross-section	CHROMATECH 	6.5	Stainless steel	0.18
Representative glass constructions	Wood/metal	Metal with thermal break (d ₁ = 100 mm)	Metal with thermal break (d ₁ = 200 mm)	
Representative basic profiles				
Representative psi value double-sheet thermally insulating glass W/mK	 Double-sheet insulating glass U _g =1.1 W/mK	0.086	0.12	0.13
Representative psi value triple-sheet thermally insulating glass W/mK	 Triple-sheet insulating glass U _g =0.7 W/mK	0.083	0.11	0.12
Two Box model Characteristic values		Space between panes in mm	$\lambda_{eq,2B}$ in W/mK	
			Box 1 · h ₁ = 6 mm	Box 2 · h ₂ = 6.5 mm
	Can be used for all spacer widths		0.40	0.81

Explanations

The equivalent thermal conductivity has been determined in accordance with ift guideline WA-17eng/1 "Thermally improved spacers – Determination of the equivalent thermal conductivity by measurement". The representative linear heat transfer coefficients (representative psi values) determined thereby apply to typical facade profiles and glazing for determination of the coefficients of thermal conductivity U_{cw} of curtain walls. They have been determined under the framework conditions (frame profiles, glazing, glass mounting depth, back covering, primary and secondary sealant) defined in ift guideline WA-22eng/1 "Thermally improved spacers – Part 3: Determination of the representative psi value for facade profiles". This guideline also governs the area of validity and application of the representative psi values. In order to avoid rounding errors, the psi values in the data sheet have been specified to the nearest 0.001 W/mK. The calculation method for determining the psi values has an accuracy of ± 0.003 W/mK. Differences of less than 0.005 W/mK are not significant. Further information can be found in the bulletin 004/2008 "Guide to Warm Edge" published by Bundesverband Flachglas.

Characteristic values determined by:

 Hochschule Rosenheim
 University of Applied Sciences


6. Glass Stamps

Glass type: GL04

Outer leaf - R/H stamp location, viewed externally, read externally.



Glass Stamp 20mm dia positioned 50mm in from Glass edge vertically & horizontally.



Customer Information n. 030en

"EUROPEAN CONSTRUCTION PRODUCTS REGULATION EU CPR"

The Construction Products Regulation (Regulation (EU) Nr. 305/2011) of 9 March 2011 replaces the Construction Products Directive 89/106/EEC of 21 December 1988

The object of the Construction Products Regulation (CPR) is to establish conditions for the bringing to market or making available of construction products by means of harmonized regulations regarding

- information about the performance of construction products (declaration of performance) and
- the CE marking

No CE marking without a declaration of performance!

AGC INTERPANE complies with the harmonized European product standards.

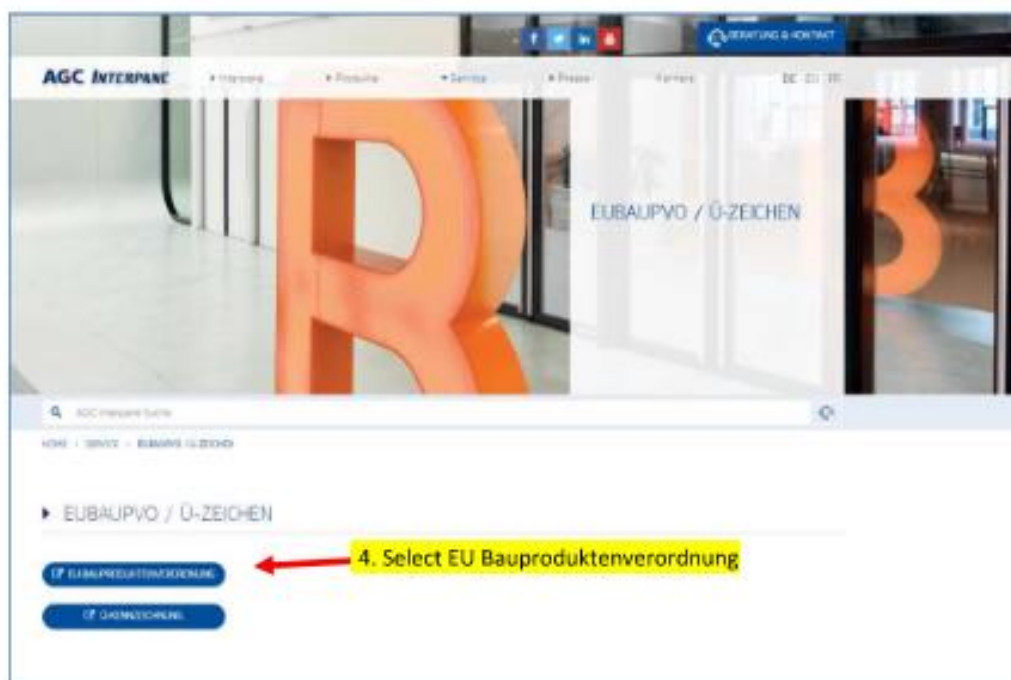
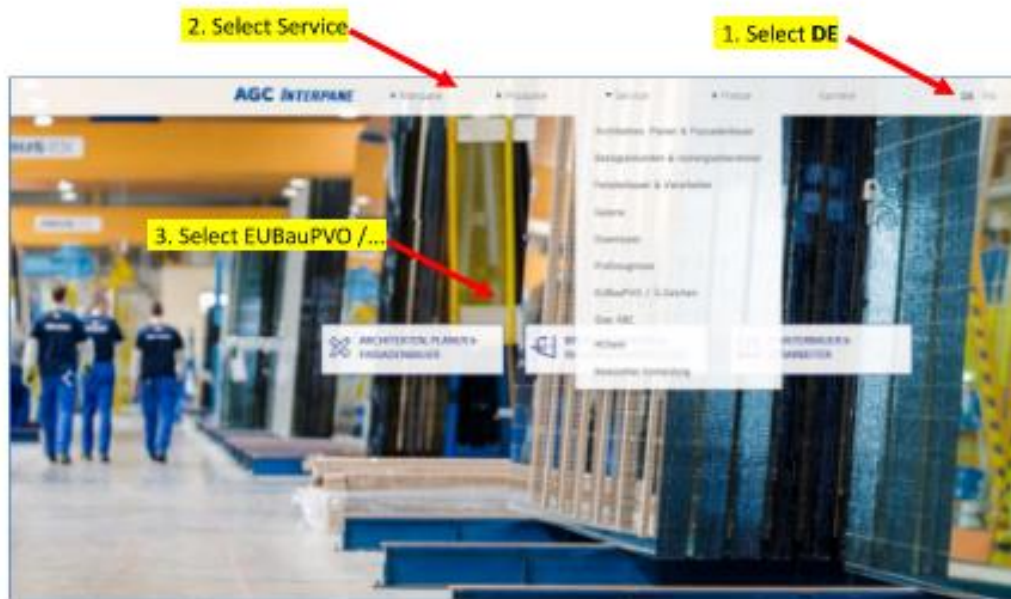
Product standard	Date of introduction	Level
Basic soda lime silicate glass products (e.g. float glass) EN 572	01.09.2006	3
Insulating glass units EN 1279	01.03.2007	3
Coated glass EN 1096	01.09.2006	3
Thermally toughened soda lime silicate safety glass EN 12 150	01.09.2006	3
Heat-strengthened soda lime silicate glass EN 1863	01.09.2006	3
Heat-soaked thermally toughened soda lime silicate safety glass EN 14 179	01.03.2007	3
Laminated glass and laminated safety glass EN 14 449	01.03.2007	3 or 1

Interpane makes it possible for you to download the relevant declaration of performance and CE declaration directly from our website.

Provision of the declaration of performance and CE declaration

To preserve the environment, Interpane generally provides the declaration of performance and the CE declaration electronically. This procedure has been used for many years with the CE declaration.

You can download or print out the relevant declaration of performance and the CE declaration at www.interpane.com, under menu: Service, area: "EU CPR / CE marking".



Leistungserklärung / CE-Kennzeichnung AGC INTERPANE

Home Deutsch English Français

1. European Construction Products Regulation (EU CPR)

The Construction Products Regulation (Regulation (EU) No. 305/2011) of 9 March 2011 replaces the Construction Products Directive (89/106/EEC of 21 December 1988).

1) General

The Construction Products Regulation (CPR) replaces the Construction Products Directive (CPD). This also affects the use of 'CE marking'.

In contrast to European directives, European regulations do not first need to be transcribed into national law. This regulation comes into force on 1 July 2013.

The object of the Construction Products Regulation (CPR) is to establish conditions for the bringing to market or making available of construction products by means of harmonized regulations regarding:

- information about the performance of construction products (declaration of performance) and
- the CE marking.

No CE marking without a declaration of performance!

Customers click here
to your order

2.

Leistungserklärung / CE-Kennzeichnung AGC INTERPANE

Home Deutsch English Français

Interpane Company
Lauenförde Isolierglas

Order

Start Item

End Item

☐ Declaration of Performance
☒ Declaration of Performance & CE marking

* Select

Start

1. Production plant

2. Your order number

3. Start position number

4. End position number

5.

6.

7.

– Bitte wählen sie eine Sprache –

– Please select your language –

– Choisissez votre langue svp. –

Example for Declaration of Performance (DoP) and CE Marking for an Insulating glass unit.

Declaration of Performance

AGC INTERPANE

1. Product type: Insulating glass unit
 2. Type: IGU
 3. Use: Office building, insulating glass unit
 4. Manufacturer: AGC INTERPANE AG
 5. System for assessment of the reliability of function and performance: System 2
 6. Harmonized product standard: EN 1279-2:2008 + A2:2010
 7. Notified body: -
 8. Declared performance:

Characteristic	Performance class	Performance verification
5.1 Gas resistance	SP2	EN 1279-2:2008 + A2:2010
5.2 Gas resistance	SP2	EN 1279-2:2008 + A2:2010
5.3 Airflow when exposed to the face externally	SP2	EN 1279-2:2008 + A2:2010
5.4 Airflow resistance	SP2	EN 1279-2:2008 + A2:2010
5.5 Airflow resistance	SP2	EN 1279-2:2008 + A2:2010
5.6 Airflow resistance	SP2	EN 1279-2:2008 + A2:2010
5.7 Resistance to impact	SP2	EN 1279-2:2008 + A2:2010
5.8 Resistance to impact (margin and difference in temperature)	SP2	EN 1279-2:2008 + A2:2010
5.9 Resistance to impact (margin and difference in temperature)	SP2	EN 1279-2:2008 + A2:2010
5.10 Resistance to impact (margin and difference in temperature)	SP2	EN 1279-2:2008 + A2:2010
5.11 Resistance to impact (margin and difference in temperature)	SP2	EN 1279-2:2008 + A2:2010
5.12 Resistance to impact (margin and difference in temperature)	SP2	EN 1279-2:2008 + A2:2010
5.13 Resistance to impact (margin and difference in temperature)	SP2	EN 1279-2:2008 + A2:2010
5.14 Resistance to impact (margin and difference in temperature)	SP2	EN 1279-2:2008 + A2:2010

The declared performance is based on the results of the tests carried out in accordance with the requirements of the standard EN 1279-2:2008 + A2:2010.

AGC INTERPANE AG
 44111 Frankfurt (Main) - Germany
 44111 Frankfurt (Main) - Germany

CE AGC INTERPANE

AGC INTERPANE AG
 44111 Frankfurt (Main) - Germany

EN 1279-2:2008 + A2:2010

Office building, insulating glass unit

Notified body: -

Properties:

Property	Value
5.1 Gas resistance	SP2
5.2 Gas resistance	SP2
5.3 Airflow when exposed to the face externally	SP2
5.4 Airflow resistance	SP2
5.5 Airflow resistance	SP2
5.6 Airflow resistance	SP2
5.7 Resistance to impact	SP2
5.8 Resistance to impact (margin and difference in temperature)	SP2
5.9 Resistance to impact (margin and difference in temperature)	SP2
5.10 Resistance to impact (margin and difference in temperature)	SP2
5.11 Resistance to impact (margin and difference in temperature)	SP2
5.12 Resistance to impact (margin and difference in temperature)	SP2
5.13 Resistance to impact (margin and difference in temperature)	SP2
5.14 Resistance to impact (margin and difference in temperature)	SP2

The declared performance is based on the results of the tests carried out in accordance with the requirements of the standard EN 1279-2:2008 + A2:2010.

Attached the AGC INTERPANE information for the "EUROPEAN CONSTRUCTION PRODUCTS REGULATION"

ift-Bescheinigung / ift Attestation

Bescheinigungsnr. / Attestation No.: 691RAL-7032677-2-1



Mehrscheiben-Isolierglas nach RAL-GZ 520 / EN 1279-6:2018

Insulating glass units according to RAL GZ 520 / EN 127-6:2018

System
wood species

Hersteller
manufacturer

Produktionsstandort
production site

Mehrscheiben-Isolierglas System Interpane

INTERPANE GLAS INDUSTRIE AG

Sohnreysstr. 21, DE 37697 Lauenförde

AGC INTERPANE

INTERPANE Glasgesellschaft mbH

Sohnreysstr. 21, DE 37697 Lauenförde

Mit dieser Bescheinigung wird bestätigt, dass das benannte Bauprodukt den Anforderungen RAL-GZ 520 in der aktuellen Fassung entspricht.

- Einführung und Aufrechterhaltung einer werkseigenen Produktionskontrolle und zusätzliche Prüfung von im Werk entnommenen Proben nach festgelegtem Prüfplan durch den Hersteller
- Erstprüfung des Produkts für die relevanten Eigenschaften durch eine notifizierte Stelle
- Erstinspektion des Werkes und der werkseigenen Produktionskontrolle durch ift-Q-Zert
- kontinuierliche Fremdüberwachung des Werkes und der werkseigenen Produktionskontrolle durch ift-Q-Zert
- Entnahme von Proben im Werk nach festgelegtem Stichprobenplan durch ift-Q-Zert und Prüfung im ift-Labor

Diese Bescheinigung wurde erstmals am [] ausgestellt und gilt 3 Jahre, wenn sich zwischenzeitlich die Festlegungen in der oben angeführten technischen Spezifikation oder die Herstellbedingungen im Werk oder in der werkseigenen Produktionskontrolle selbst nicht wesentlich verändert haben.

Die Verwendung dieser ift-Bescheinigung ist an einen bestehenden ift-Überwachungsvertrag gebunden.

Diese Bescheinigung ersetzt nicht die Erstellung der Leistungserklärung und CE-Kennzeichnung durch den Hersteller.

This attestation confirms that the building product mentioned fulfils the RAL-GZ 520 in its current version.

- implementation and maintenance of a factory production control and additional testing of samples taken at the production site in accordance with a defined test plan by the manufacturer
- initial type-testing for the relevant characteristics of the product performed by a notified body
- initial inspection of the production site and the factory production control by ift-Q-Zert
- continuous third-party control of the production site and the factory production control by ift-Q-Zert
- taking of samples at the production site in accordance with a defined sampling plan by ift-Q-Zert and testing at the ift laboratory

This attestation was first issued on [] and will remain valid for 3 years, as long as neither the conditions laid down in the technical specification listed above nor the manufacturing conditions in the production site nor the factory production control itself are modified significantly.

The use of the ift attestation is based on a duly signed ift surveillance contract.

This attestation does neither replace the declaration of performance (dop) nor the CE marking by the manufacturer.

Grundlage(n) / Basis:

Mehrscheiben-Isolierglas -
Gütesicherung RAL-GZ 520
Ausgabe / issue: Sep 2020



ift Rosenheim
17.12.2020

Gültig bis /
Valid until:

Vertragsnr. /
Contract No.:

Christian Kehrer
Leiter der ift-Zertifizierungs- und Überwachungsstelle
Head of ift Certification and Surveillance

16.12.2023

691RAL 7032677

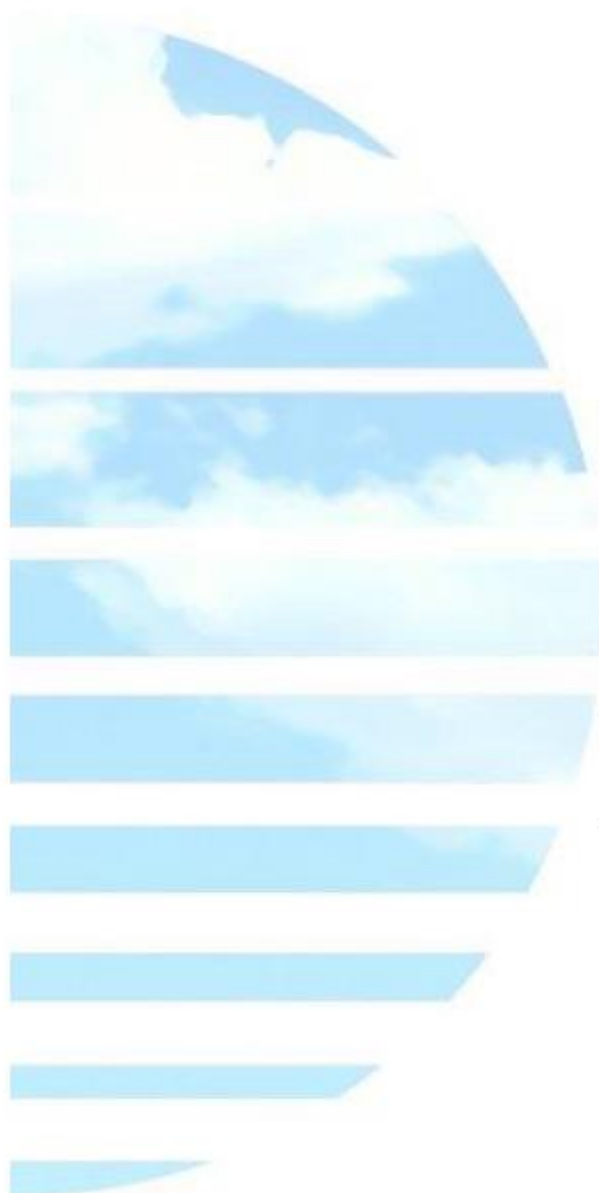


Prof. Jörn P. Lass
Institutsleiter
Director of Institute



Interpane Glasgesellschaft mbH
Sohnrestrasse 21
D-37697 Lauenforde
Germany

vincent.smith@interpane.com
www.interpane.com



Project

The Factory, Manchester

ITEM

Project Tolerances

CUSTOMER

Prater

DATE

4th June 2021

COATING

N/a

Tolerances

Esthetical:

Coating criteria	: ± 2 mm coloured/white line
	Further effects after installation on the width of the primary sealing by:
	• Temperature
	• Climatic loads
	• Wind loads
	• Pressing pressure of the glass bar

Note:

Sometimes these effects can lead to a 3mm colored line, which exceed the described tolerances over ~1mm.

That is no reason of rejection.

For the corners up to 150 mm from the corners, these tolerances are not applicable.

Distortion due to heat treatment process	: Roller wave	: 0.15 mm over max. 300 mm
	Edge-dip	: 0.25 mm over max. 300 mm
Toughening direction	: horizontal (dependent on size)	
Flatness	: Max. Bow	: + 2.0 mm / lm

Dimensions and shapes:

Flatness of double glazing unit	: ± 2 mm/lm
---------------------------------	-----------------

Dimensional tolerances inclusive displacement of any component at

edges for double glazing unit	: Length or height: ± 2 mm
	Squareness : max. 3 mm diagonal difference
	Total thickness : ± 1.5 mm

Note:

*I None = Not applicable or not relevant value for this glass type.

*I Laminated glass measured on single pane

Light and solar radiant heat factors are calculated values and can deviate +/- 5 % due to the chemical composition of the glass. The indicated characteristics and values apply for the transparent part of the glass unit, which is no longer processed e.g. by screen-print, enamelling, drilling.

The above figures are based on an average unit size of 2000mm x 3000mm, with all glass falling within its maximum production sizes

Light and solar radiant heat factors may vary due to the chemical composition of the glass and the production process. These factors refer to test panes as specified by the applicable testing standard.

: position of the coating

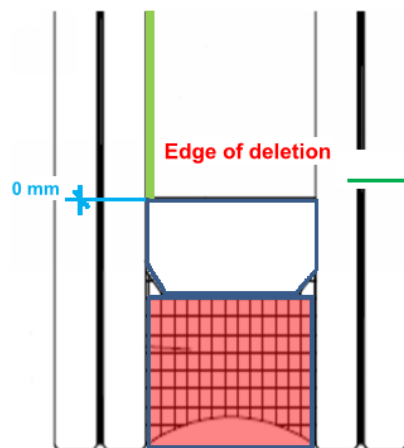
Vincent Smith, Interpane Glasgesellschaft mbH, Lauenförde
04.06.2021

Standard

+/- 2mm White- / Coloured Line for IGU's with Silicon edge seal

AGC INTERPANE

+/- 2mm White- / Coloured Line for IGU's with Silicon edge seal

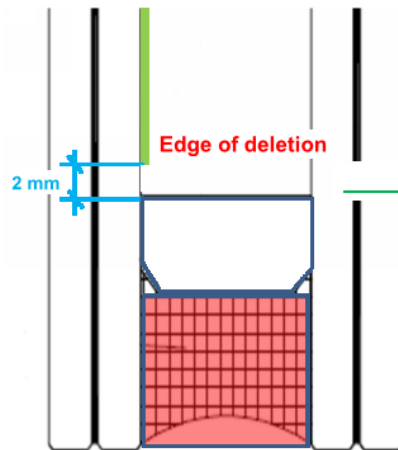


TARGET = No White Line / No Colour Line

For the corners up to 150 mm from the corners, these tolerances are not applicable.

AGC INTERPANE

+/- 2mm White- / Coloured Line for IGU's with Silicon edge seal

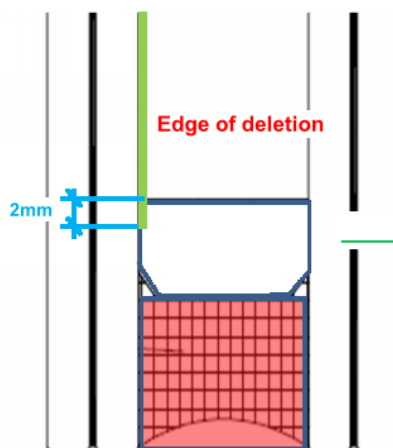


+ 2mm = 2mm White Line

For the corners up to 150 mm from the corners, these tolerances are not applicable.

AGC INTERPANE

+/- 2mm White- / Coloured Line for IGU's with Silicon edge seal



- 2mm = 2mm Colour Line

For the corners up to 150 mm from the corners, these tolerances are not applicable.

Note: Sometimes the effects below can lead to a slightly thicker coloured-line, which exceed the described tolerances. This could be partial not continuous possible after production.

Further effects after installation on the width of the primary sealing by:

- temperature
- climatic loads
- wind loads
- pressing pressure of the glass bar

AGC INTERPANE

The Factory

Manchester

UK

 SHORT REPORT: DEFINITION OF MIN. REQUIRED GLASS
 TEMPERATURE QUALITIES ACCORDING TO NF DTU 39
 P3

29.07.2021

IP UK

PROJECT INFORMATION:

PROJECT NAME: The Factory
LOCATION (CITY AND COUNTRY): Manchester UK
CUSTOMER: IP UK
ASKED BY: Vincent Smith

GLASS DESCRIPTION:

PANE 1 (OUTER): 44.4 Clearvision HS, acoustic, iplus 1.1 #4
SPACER 24mm Argon 90%
PANE 2: 44.4 Clearvision HS, acoustic

ORIENTATION: all
DIMENSIONS (width x height) [mm]: max. 1126 x 2414
INCLINATION: vertical

TYPE OF FRAME: Fixed aluminium frame without contact to structure
SUPPORTED: 4-sides
SHADOW: partially in shadow

BLIND / CURTAIN / SCREENS: With the used glass types (inner and outer HS-glass), we have no concerns for internal blinds (any colour) to be used and there is no risk of thermal glass breakage.

OBSTACLE: small backup, distance 10mm, height 0mm

RESULT:

The most critical orientation	South	South
The most critical season	Autumn	Winter
Ext./ int. Glass	Ext.	Int.
Glass type	44.4 Clearvision HS, acoustic, iplus 1.1 #4	44.4 Clearvision HS, acoustic
Glass type /-quality as foreseen	heat strengthened glass	heat strengthened glass
Max. glass temperature [°C]	51,1	73,1
Max. temperature difference ΔT [°C]	24,8	46,4
Admissible stress σ_{adm} [MPa]	87,5	87,5
Max. induced thermal stress σ_{th} [MPa]	14,10	26,30
Glass quality intended to install by client (for thermal safety)	ok	ok

The Factory

Manchester

UK

 SHORT REPORT: DEFINITION OF MIN. REQUIRED GLASS
 TEMPERATURE QUALITIES ACCORDING TO NF DTU 39
 P3

29.07.2021

IP UK

RECOMMENDATION:

Glass type	44.4 Clearvision HS, acoustic, iplus 1,1 #4	44.4 Clearvision HS, acoustic
Glass type /-quality as foreseen	heat strengthened glass	heat strengthened glass
MINIMUM required glass (-edge) quality (for thermal stress)	heat strengthened glass	heat strengthened glass
Max. induced thermal stress σ_{th} [MPa]	14,10	26,30
Admissible stress σ_{adm} [MPa]	87,5	87,5

CALCULATION METHOD: according to NF DTU39 P3

SOFTWARE: Vitrages Décision 5.2.21

CLIMATIC DATA: from Vitrages Decision 5.2.21
 Manchester / UK

ANNEXES: —

NOTES: according filled TSA-form; doors

Please check the assumptions very carefully and inform us immediately about any deviations. We reserve us the right for a new calculation.

OTHER REMARKS:

The calculation was based upon the information contained on the form in the appendices and considering the following unit. Please check all the assumptions carefully and tell us any deviations in comparison to the original construction.

The term "Thermally Safe" does not exclude the possibility of thermal stress breakage if the boundary conditions change.

The software Vitrages Decision calculates in two ways – transient-state analysis (in 15 min. time steps) and steady-state analysis. The construction or detail is calculated in one direction only. No heat conductivity is assumed between glass edge and centre of the glass. The influence of frame and spacer can be calculated using defined coefficients.

The maximum and minimum temperatures of glass, glass components and air space are calculated values using standardized assumptions and defined climatic conditions.

Results are valid for given assumptions: dimensions, orientations, shading devices, int.backups or blinds for verified glass construction details as indicated in present report. In case of any modification, we recommend a re-validation of the analysis.

The Factory

Manchester

UK

 SHORT REPORT: DEFINITION OF MIN. REQUIRED GLASS
 TEMPERATURE QUALITIES ACCORDING TO NF DTU 39

P3

29.07.2021

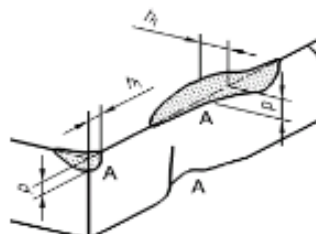
IP UK

CONDITIONS FOR GLASS THERMAL SAFETY:

Minimum required glass treatments are proposed according Table - Recommendation in order to reach thermal safety of applied glass.

A) Annealed glass, clean cut:

according to EN 572



Normally cut annealed glass, but limited allowed edge defects:
 $p(\text{depth}) < 1\text{mm}$; $h1 < (\text{thickness} - 1)$

Cut edge does not help to decrease the risk of breakage due to thermal shock as well as arised or ground edge.

B) Annealed glass, smooth ground edge:

according to EN 572

The glass edge is processed by grinding across its whole surface. Grinding is also applied to the edge areas (i.e. in a way that corresponds to the arised edge). Smooth ground edge surface present the appearance of surfaces made frosty and opaque by grinding. Blank areas and flakes are not permissible.

Smooth ground edge as well as polished edge limits the deviation of strength to an acceptable level of confidence by elimination of scratches or inherent defects from glass cutting, removing at least 1mm of the complete glass edge areas. It does not make glass really stronger, but accounts for higher mechanical reliability and thermal safety.

C) Heat strengthened glass:

according to EN 1863

D) Thermally toughened glass:

according to EN 12150

Best regards,
 INTERPANE Glasgesellschaft mbH - GLASS FOR LIFE

DIRK SOMMER

TAS - Technical Advisory Service

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Any recommendation or specific advice is a recommendation only and is only given within the framework of the project for which it has been requested, no further or otherwise. It is completely based upon the information provided by the customer. Incomplete information or erroneous information will influence the recommendation or specific advice.

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Saflex® QS 71 acoustic interlayer

Saflex® Q acoustic interlayer for architectural glazing applications is an engineered polyvinyl butyral (PVB) interlayer for laminated glass constructions that are designed to reduce perceived transmitted noise. Saflex Q acoustic interlayer is available in three thicknesses: 0.51 mm (0.020 inch), 0.76 mm (0.030 inch) and 1.52 mm (0.060 inch) to accommodate various application needs from simple noise abatement, through safety and security glazing design. The product allows laminators to produce glass laminates with enhanced acoustical properties compared to laminates made with standard polyvinyl butyral (PVB).

Saflex Q acoustic interlayer can be used as a single layer, and with proper lamination it can be layered with another sheet of Saflex Q acoustic interlayer or combined with other Saflex IIG based interlayers (Saflex R, Saflex HP (DM), Saflex DG structural, Saflex SG solar and Vanceva® interlayers) to achieve desired colors and thickness for complex and high performance configurations. We recommend that mock up panels be produced and approved to ensure acceptable optical properties as mottling may occur with certain conditions and configurations.

Saflex QS 71 acoustic interlayer in 1.52 mm is the recommended product for lamination when using the co-extruded interlayer with strengthened glass and where residual air may be a concern.

Notice: Although the information and/or recommendations as may be set forth herein (hereafter "Information") are presented in good faith and believed to be correct at the date hereof, Eastman Chemical Company and its subsidiaries and affiliates including Solutia Inc. (hereinafter "Eastman") make no representations or warranties as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Eastman be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information or the product to which Information refers. Nothing contained herein is to be construed as a recommendation to use any product, process, equipment or formulation in conflict with any patent, and Eastman makes no representation or warranty, express or implied, that the use thereof will not infringe any patent. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

The data presented is derived from samples tested. Results are not guaranteed for all samples or for conditions other than those tested. Data and its respective measured, calculated or estimated single number ratings is for glass panels only – glazing installed in frames may differ significantly in performance.

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730 Worcester Street | Springfield, MA 01151
413.730-3413 | glazing@eastman.com

Document: AATD_QS 71 Product Use_031815.docx
Date: 2015-03-19
Page: 1 of 1



PRODUCT INFORMATION

GD 115

**KÖMMERLING**

KÖMMERLING CHEMISCHE FABRIK GMBH

Solvent-free, one-component primary sealant

- With very low water vapour and gas permeability for interior sealing of multi-pane insulating glass units
- Good adhesion to glass, aluminium and galvanized or stainless steel
- Good ageing resistance

TECHNICAL DATA

Base	Synthetic rubber (polyisobutylene), solvent-free		
Colour	Black		
Consistency	Solid compound, can only be applied at elevated temperatures using a heated butyl extruder		
Density	approx.	1.05 g/cm ³	DIN 53 479, 23°C
Gas permeation	<	0.01 g/m ² •h	EN 1279.4
Water vapour transmission rate	<	0.1 g/m ² •d	EN 1279.4
Volatile content	≤	0.6 %	EN 1279.6, annex G
Consumption		2.5 g / running meter	
Fogging	Without visual fogging		EN 1279.6, annex C
Penetration	approx.	32	ISO 2137

PROCESSING**Preparation**

The surfaces must be clean, dry and free from dust and grease. Use Körasolv GL to clean and degrease glass and metals.
Primer is not required.

Bonding

GD 115 is supplied ready for use but must be heated to approx. 110°C to 130°C for application. The product is applied with heated butyl extruders.

SPECIAL NOTES**Storage**

Store product in a cool, dry and clean place. When stored at room temperature, GD 115 has a shelf life of at least 24 months.

SAFETY

Please notice the indications on our EC-safety-data-sheets and the safety-indications on the labels of each product for the treatment of our products.

Especially the directions of the Dangerous Substance Regulation have to be respected.

Keep the EC-safety-data-sheet of the product you treat ready to hand. It gives you valuable indications for the safe usage, disposal and in case of accidents.

CLEANING

Use Körasolv GL to clean the surfaces.

PACKAGING UNITS

Disposable slugs/drums

Content of slugs/drums: 2,5 kg, 6,8 kg, 190 kg

For safety related data please refer to the safety data sheet!

Please note: All given data are based on careful examination in our laboratories and our past practical experience. These are non-binding indications. Given the high number of materials appearing on the market and the different methods of use which are beyond our influence and control, we naturally cannot accept any responsibility for the results of your work, also with regard to third party patent rights. We recommend that sufficiently thorough tests be carried out to ascertain whether the product described will meet the requirements of your particular case. Please also note our Terms of Sale, Delivery and Payment. This Product Information replaces all previous issues.



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DIN EN ISO 9001:2000
Zertifikat 01 100 044553
ISO 14001:2004
Zertifikat 01 104 053913
OHSAS 18001:1999
Zertifikat: CA 03 116 4020

For safety related data please refer to the safety data sheet!

Please note: All given data are based on careful examination in our laboratories and our past practical experience. These are non-binding indications. Given the high number of materials appearing on the market and the different methods of use which are beyond our influence and control, we naturally cannot accept any responsibility for the results of your work, also with regard to third party patent rights. We recommend that sufficiently thorough tests be carried out to ascertain whether the product described will meet the requirements of your particular case. Please also note our Terms of Sale, Delivery and Payment. This Product information replaces all previous issues.



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DIN EN ISO 9001:2000
Zertifiz. 01 100 044853
ISO 14001:2004
Zertifiz. 01 104 053813
OHSAS 18001:1999
Zertifiz. 01-25 118 4030

Product Information

High Performance Building

DOW CORNING

Dow Corning® 3363 Insulating Glass Sealant

FEATURES & BENEFITS

- Economical joint sizes in high strength IG applications
- High design strength (0.21 MPa) allowing joint size reduction up to 30%
- Enhanced productivity with reduced joint dimensions
- European Technical Approval (ETA13/0359)
- Suitable for gas-filled triple glazed units and gas-filled double glazed units.
- Structural capability as secondary sealant for insulating glass in structural glazing applications
- Outstanding adhesion to a wide range of substrates including coated and reflective glasses, aluminium and steel spacers, and a variety of plastics
- Meets EN 1279 part 4 and 6 and EN 13022
- Tested according to EN 15434
- Low water absorption
- Excellent temperature stability: -50°C to 150°C
- Non-corrosive cure
- Fast curing time
- Outstanding resistance to ozone and ultraviolet (UV) radiation
- High modulus which limits the stress on the primary sealant and makes it particularly suited for gas-filled insulating glass units

Two-part silicone sealant with high strength for use as a secondary seal in insulating glass units.

APPLICATIONS

- Dow Corning® 3363 Insulating Glass Sealant is a high strength secondary two-part silicone sealant specifically designed for high strength applications, where conventional sealants with lower strength would lead to increased joint sizes. It enables economical joint sizes in highly demanding insulating glass (IG) applications such as: high wind in tall buildings, hurricane loads, cold-bent glass or high impact loads such as bomb blast. Smaller joint dimensions can be filled faster and therefore lead to productivity enhancements.
- Dow Corning 3363 Insulating Glass Sealant is ideal as a secondary sealant for triple and double glazed units and meets EN 1279 requirements for gas-filled IG.
- Dow Corning 3363 Insulating Glass Sealant can be used in IG applications for structurally glazed facades. It is UV resistant, provides long-term durability and excellent adhesion to glass and IG spacers.

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Test*	Property	Unit	Result
Dow Corning® 3363 Base: as supplied			
	Color and consistency		White, viscous paste
	Specific gravity		1.38
Dow Corning® 3363 Curing agent: as supplied			
	Color and consistency		Thick black paste
	Specific gravity		1.05
	Viscosity (60s ⁻¹)	Pa.s	7.5
As mixed			
	Color and consistency		Black non-slump paste
	Working time (25°C, 50% R.H.)	minutes	5-10
	Snap time (25°C, 50% R.H.)	minutes	10-30
	Specific gravity		1.36
	Corrosiveness		Non-corrosive
ISO 8339	Tensile strength	MPa	1.5

DESCRIPTION

Dow Corning 3363 Insulating Glass Sealant is a two-component, neutral curing silicone formulation for insulating glass applications.

TECHNICAL SPECIFICATIONS AND STANDARDS

Dow Corning 3363 Insulating Glass Sealant is suitable as secondary seal in gas-filled insulating glass units and meets the requirements according to EN 1279 in an IG system. It is suitable for gas-filled triple and double glazed IG. As valid for any other technology, a proper application and fabrication of the insulating glass unit is required.

Dow Corning 3363 Insulating Glass Sealant is CE-marked according to ETAG002. The product also meets requirements according to EN 1279 parts 4 and 6.

SNJF Vi-VEC



HOW TO USE

Mixing and dispensing instructions

Dow Corning 3363 Insulating Glass Sealant should be mixed in a ratio of 10:1 base to curing agent by weight. At this mix ratio, the sealant typically exhibits a working time of 5-10 minutes and allows units to be handled within two hours. Slight variations in mixing ratio can be tolerated, but these should not exceed 11:1 to 9:1 by weight to ensure minimum properties are obtained.

The sealant is compatible with most of Dow Corning® Neutral Curing Sealants. Please contact our Technical Services Department for more information.

To achieve the best mechanical properties of Dow Corning 3363 Insulating Glass Sealant, it is recommended that the base and curing

TYPICAL PROPERTIES (cont.)

Test*	Property	Unit	Result
EN 1279-6	Durometer hardness, Shore A		60
ETAG 002	Design stress in tension	MPa	0.21
	Design stress in static shear	MPa	0.011
	Elastic modulus in tension or compression	MPa	4.8
EN 1279-4	Water vapor permeability (2.0 mm film)	g/m ² /24h	18
EN 1279-4	Gas permeability	g/(m ² h)	0.46

ISO: International Standardization Organization.

EN: European Norm.

ETAG: European Technical Agreement Guidelines.

agent are thoroughly mixed using an airless mixing system found on most existing commercially available two-part silicone dispensing machines.

Equipment cleaning

When not being used it is recommended that the dispensing equipment be purged either with the uncatalyzed base, or flushed with a suitable solvent such as Dow Corning® 3522 Concentrated Cleaning Solvent. If cured sealant has built up inside the equipment it is recommended to flush the equipment for the appropriate time with Dow Corning 3522 Concentrated Cleaning Solvent. This solvent dissolves cured silicone sealant and provides optimum cleaning performance.

TECHNICAL SERVICES

Dow Corning provides comprehensive technical service as part of customer support to ensure the optimal performance of your insulated glass design. This includes dispensing equipment recommendations, as well as sealant compatibility testing with all your chosen insulated glass unit components. For structural glazing applications, special unit design should be reviewed on a project basis by Dow Corning technical service staff.

Consult Dow Corning's Technical Services department for further advice on specific applications:

Your Dow Corning contact details (e-mails):

Technical inquiries:
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Marketing:

construction.marketing@dowcorning.com

Quality Bond:

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EHS inquiries:

europe.ehs@dowcorning.com

Reach inquiries:

reachsupport@dowcorning.com

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From Germany +0800 52 50 258

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From Spain +900 813161

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For German +49 611 237503

For Italian +32 64 51 11 73

For Spanish +32 64 51 11 66

For Russian +7 495 725 43 19

Fax number from all countries:

+32 64 88 86 86

HANDLING PRECAUTIONS
PRODUCT SAFETY
INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE DOW CORNING WEBSITE AT DOWCORNING.COM, OR FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.

USABLE LIFE AND STORAGE

When stored at or below 30°C, *Dow Corning* 3363 Insulating Glass Curing Agent has a usable life of 14 months from the date of production.

When stored at or below 30°C, *Dow Corning* 3363 Insulating Glass Base has a usable life of 14 months from the date of production.

PACKAGING INFORMATION

Lot matching of Base and Curing Agent is not required. *Dow Corning* 3363 Insulating Glass Base is available in 250 kg drums. *Dow Corning*® 3363 Insulating Glass Catalyst is available in 25 kg pails.

LIMITATIONS

The sealant cannot be used for structural glazing of glass units onto a metal frame. *Dow Corning*® 993 Structural Glazing Sealant is the recommended product for that application.

Please contact Dow Corning to get the proper glazing recommendations when using coated glass.

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our website, dowcorning.com or consult your local Dow Corning representative.

LIMITED WARRANTY INFORMATION – PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow Corning's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

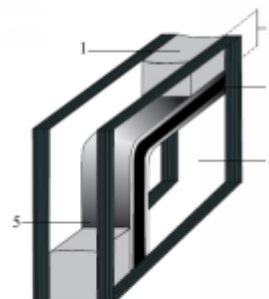
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We help you invent the future.™

dowcorning.com

Figure 1: Typical section of a dual sealed insulating glass unit.



Legend

1. Secondary seal (*Dow Corning* 3363 Insulating Glass Sealant)
2. Secondary seal - sealant depth
3. Primary seal - Polyisobutylene
4. Glass
5. Spacer bar

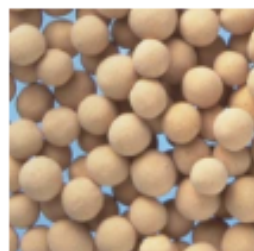
SILIPORITE® NK 30 BEADS

REVISION 7

UPDATED ON APRIL 2009

DESCRIPTION

SILIPORITE® NK 30 is a synthetic zeolite type A crystalline structure in potassium-sodium form, having an effective pore opening of 3 angströms.



SPECIFICATIONS		VALUES				TEST CONTROL
BEAD STANDARD GRAIN SIZE		1.6 mm	1.3 mm	1.0 mm	0.7 mm	
PARTICLE SIZE DISTRIBUTION						
ABOVE (% weight)	0.5 mm	-	-	-	90 min	009
	0.8 mm	-	-	75 min	-	009
	1 mm	-	85 min	-	2 max	009
	1.25 mm	-	-	5 max	-	009
	1.4 mm	85 min	-	-	-	009
	1.6 mm	-	10 max	-	-	009
	2 mm	10 max	-	-	-	009
	2.5 mm	-	-	-	-	009
DELTA T (50g MS / 50cm ³ Water)	(°C)	36 min	36 min	36 min	36 min	004
LOSS ON IGNITION (at 950°C)	(% weight)	2.0 max	2.0 max	2.0 max	2.0 max	001
WATER ADSORPTION CAPACITY AT 23°C ± 2°C						
- at 10% RH (2.375 mm Hg)	(% weight)	16.5 min	16.5 min	16.5 min	16.5 min	002
DUST	mg/m ³	70 max	70 max	70 max	70 max	005

TYPICAL PROPERTIES		VALUES				TEST CONTROL
BULK DENSITY		0.70-0.80	0.70-0.80	0.67-0.79	0.67-0.79	006
WATER ADSORPTION CAPACITY AT 23°C ± 2°C						
- at 32% RH (11.88 mm Hg) acc. to EN 1279-2	(% weight)	20	20	20	20	002
GAS DESORPTION (Nitrogen, Argon)	cm³ / 100g	15	15	15	15	015

APPLICATIONS	STANDARD PACKAGING
SILIPORITE® NK 30 beads can be used as desiccant : ➤ BUILDING: ➤ Double glazing windows with inner spacer. ➤ Door windows for refrigerators. ➤ FINE CHEMICALS AND PHARMACEUTICALS: ➤ Drying of solvents.	SILIPORITE® NK 30 beads are delivered in waterproof drums and boxes or in big bag : ➤ Metallic drum Net Weight : 130 kg ➤ Box Net Weight : 25 kg ➤ Big Bag Net Weight : 600 or 1000 kg

15. Lamination Dilation Statement

Edge effects and delamination for laminated glass edges allowable up to 15mm/10 years

16. Glass Acoustic Data Sheet

No Test Data available for DGU Unit at R_w+C_{tr} ,50-5000Hz

Attached Test Data sheet for a Glass Spec - 8.76mm Laminate / 15mm Cavity / 8.76mm Laminate.

This is of a lower Spec than the one being proposed.

At 100Hz this achieved 30dB at 1/3 Octave dB. The graph line is on an upwards projection, as the frequency decreases, the 1/3 octave band is increasing.

Therefore referencing the graph projection in the data and along with the figures of the attached calculation sheet for the DGU proposed - 9.52mm 24mm 9.52mm Glass, we expect the specified figure of 35dB will be achieved.

See below Test Data & Calculation



Technical Advisory Service
AGC Glass Europe
Avenue Jean Monnet, 4
1348 Louvain-la-Neuve
Belgium

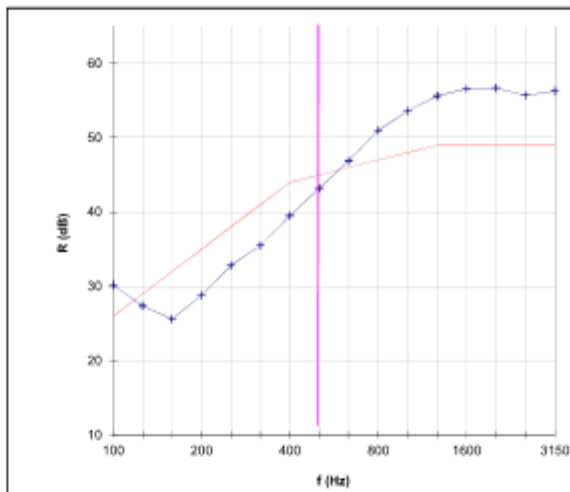
Sound reduction indexes according to international standards

Outer glass Stratophone 44.2
Spacer 15 mm
Inner glass Stratophone 44.2

Test reference : IFT (2017)
Internal reference : 17-001081-PR02 PB 21

Measurement results

Frequency (Hertz)	1/3 octave (dB)	Octave (dB)
100	30.2	
125	27.4	27.3
160	25.6	
200	28.8	
250	32.8	31.5
315	35.5	
400	39.5	
500	43.2	42.2
630	46.9	
800	51.0	
1000	53.6	53.0
1250	55.6	
1600	56.6	
2000	56.7	56.3
2500	55.7	
3150	56.3	
4000	62.3	59.7
5000	65.0	



Sound reduction indexes

International/European standard EN ISO 717-1 (1996)	
R _w :	45 dB
(C; C _{tr}) :	(-2; -7) dB

French standard Following EN ISO 717-1	
RA = R _w + C	43 dB
RA, tr = R _w + C _{tr}	38 dB

Dutch standard NEN 5079 (1989)	
Road noise (R _a) :	38 dB(A)
Railway noise (R _{a,r}) :	45 dB(A)
Air traffic (R _{a,I}) :	41 dB(A)

Belgian standard NBN S 01-400 (1977)	
Class :	Va+1 dB

US standard	
ASTM E413 - 16	STC : 45 dB
ASTM E1332 - 16	OITC : 36 dB

These sound reduction indexes correspond to glazings which are 1,23 m by 1,48 m and are tested in laboratory conditions following EN ISO 10140-3. In-situ performances may vary according to the effective glazing dimensions, frame system, noise sources, etc.

The accuracy of the given indexes is not better than +/- 1 dB.

24/08/2018

Interpolated sound reduction indexes EN ISO 717-1

Structure	Thickness [mm]	Rw [dB]	Rw+C [dB]	Rw+Ctr [dB]
44.4 st - 24 - 44.4 st	44	47	45	40

The sound reduction indexes are interpolated (no test available). They correspond to glazing with dimensions 1230 mm by 1480 mm according to EN ISO 10140-3. In-situ performances may vary according to the effective glazing dimensions, supporting system, installation, environment, noise sources etc. The accuracy of the given indexes is +/- 2 dB.

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