WÜRTH

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

0890 538300 - 300ML
0890 538600 - 600 ML



WÜRTH

COMPANY PROFILE

Würth Means quality everywhere and every time



INDEX

1) Company Profile
2) Trade License
3) Method of Statement
4) Schedule of the materials
5) Technical Data Sheet
6) Safety Data Sheet
7) ISO
8) Test Reports
9) Country of Origin
10) Approvals
11) Draft Warranty



VISION | WÜRTH GROUP

Our vision: Becoming the number 1 in the eyes of our customers as the best sales team. As a family business with a strong corporate culture, the Würth Group is very well-positioned to achieve this goal.

OUR MISSION

Our mission is to develop long-standing and mutually beneficial relationships with our customers, suppliers and employees. We provide superior quality products and services that exceed our customer expectations. We are committed to build upon our brand as being synonymous with the best in the industry, a brand that our stakeholders will be proud of.

OUR PRINCIPLES

We request and promote achievements.
The greater the success, the more freedom and liberty.
We are optimistic, dynamic and have powers of self-assertion.
We passionately fight for success.
We consistently pursue everything that has proven to be successful, and we try out new things.
We strive for perfection in every area of our activities.
We assume responsibility for our actions, work in mutual respect and appreciation, are straightforward and predictable in everything we do.
The term we consider most important in dealing with each other is ''Thank You''.

ABOUT WÜRTH GROUP

The Würth Group is the global market leader in its core business:

Established in 1945 in Germany
Established in 2000 in UAE
Around 120,000 products
The sale and manufacturing of fastening and assembly materials.
In more than 80 countries, Würth Group has 83,000 employees and 2,400 pickup shops.





OUR STRATEGY

Quality
True to its motto "Quality beats price," Würth is positioned at the very top of the quality spectrum: We do not only offer top-notch quality when it comes to our products, but also for our services.

Würth - a strong brand
We want to inspire our customers – all over the world, with identical quality and the same brand promise. This means that we support our customers actively and in a solution-oriented manner. This way, they can focus on their business. We are working passionately to optimize our products and services constantly.

The sales force is the company's heart and soul
One of our particular strengths and a key to the Würth Group's success story is the system of direct selling through our sales force organization.

More than 33,000 permanently employed sales representatives all over world advise our customers and see to it that craft and industry businesses are offered product solutions tailored to their needs as well as optimal services. Thanks to our specialization through the divisions Automotive, Cargo, Metal, Maintenance, Maritime, Installation, Industry, Construction, Wood, every sales representative is a competent contact in his/her line of business, ensuring individual advice. This approach makes Würth a reliable partner for its 3.9 million customers worldwide.

Active in the market over 80 countries
We are a global player and currently active on all five continents with more than 400 Würth companies. Thanks to this strong presence, our customers, be they a small craft enterprise or an international industry business, can reach us easily. They are certain to receive Würth's top-rate product and service quality wherever they may be.

At the same time, the Würth Group's decentralized structure provides the possibility to react flexibly to the requirements of local markets and answer to individual needs.



"Sports, Fun & Games in the Würth Collection": The exhibition at Kunsthalle Würth in Schwäbisch Hall focuses on the phenomenon of leisure on 1st November 2022.

WÜRTH CARES

The Würth Group and the Würth Foundation contribute to a vibrant cultural landscape and the people's social welfare. The Group runs, for instance, five museums in the German Hohenlohe region and another ten associated galleries across Europe that display international works of art, mainly from the Würth Collection. Würth Philharmoniker as the musical ensemble of Reinhold Würth Musikstiftung gGmbH is the result of the Group's involvement in classical music. In addition, the Würth Group ond the Würth Foundation are committed to helping people with a disability. Hotel-Restaurant Anne-Sophie and our commitment at the Special Olympics ore examples for this. Another focus is on education and research, be that at Freie Schule Anne-Sophie schools, funded by the Würth Foundation, or Reinhold Würth Hochschule. The Würth Group's main sports sponsoring focus is on soccer and winter sports.

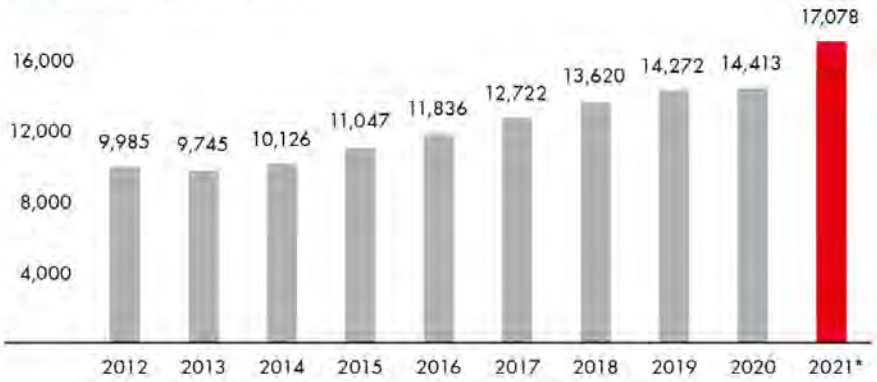
The Würth Group also lives up to its environmental responsibility. Being carbon neutral and operating in a circular way are focus topics. Adolf Würth GmbH & Co. KG wants to be carbon-neutral at all sites in Germany by 2024. The Sustainability Report that will be published in the fall of 2022 will contain information about the Group's sustainable activities.

FACTS AND FIGURES

Würth Group 2021

Sales

Würth Group in millions of EUR



* preliminary

Operating result before taxes

Würth Group in millions of EUR

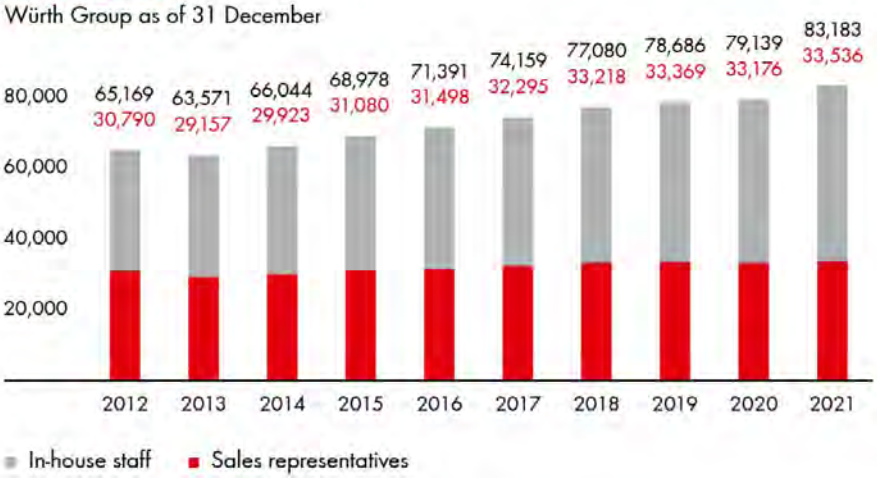


The consolidated financial statements of the Würth Group are prepared in accordance with the International Financial Reporting Standards (IFRS).

*preliminary

Employees

Würth Group as of 31 December



THE 2021 FISCAL YEAR

According to the preliminary annual financial statement, **the Würth Group** reported a sales volume of EUR 17.1 billion in 2021 (2020: EUR 14.4 billion), corresponding to a plus of 18.5 percent or 19.0 percent adjusted for currencies. In Germany, the Würth Group's sales grew by 14.1 percent to EUR 6.9 billion (2020: EUR 6.1 billion). With EUR 10.2 billion (2020: EUR 8.3 billion), the Würth companies abroad achieved even more successful results.

According to the preliminary consolidated financial statements, **the operating result** of the Würth Group is clearly up on the previous year with EUR 1.2 billion (2020: EUR 775 million).

The number of employees increased by 4,044 to 83,183 in 2021 (2020: 79,139 employees). In Germany, the number of employees amounts to 25,438. Around the world, the Würth Group employs more than 33,000 sales representatives.

New administration building

In close proximity to the main administration building at the Künzelsau-Gaisbach site, Würth plans to build a new office and administration building. It will be a 49-meter high-rise offering around 375 work spaces. Adolf Würth GmbH & Co. KG launched an international architectural design contest for the planning and implementation of this construction project. Stuttgart-based architects ORANGE BLU building solutions won with its "sculpture of sustainability" design. The focus of this building project is on sustainability and circular economy: It will be based on a hybrid wood construction. The high proportion of prefabricated wood elements will reduce the carbon footprint.

The new building is a clear commitment of the Group to the development of the Hohenlohe location, while also corroborating the further growth of the Würth Group's parent company.

THE CORPORATE GROUP

The success story of the Würth Group

Adolf Würth laid the foundation in 1945 when he set up Adolf Würth GmbH & Co. KG in Künzelsau, today's parent company of the Würth Group. After his father's early death in 1954, Reinhold Würth took over at the helm of the family business at the age of 19. The company began to expand into international territory in 1962 as the first foreign company was founded in the Netherlands. Today, the Würth Group is the global market leader in its core business: the sale and manufacturing of fastening and assembly materials. The Würth Group is operating worldwide and currently consists of more than 400 companies with more than 2,400 pick-up shops in over 80 countries. The group of companies has more than 83,000 employees.

The Operational Units of the Würth Group

The Würth Group is divided into two operational units: Würth Line and Allied Companies. In the Würth Line's core business, the sale and manufacturing of assembly and fastening materials, the Würth Group is a firmly established market player. Offering a range of more than 125,000 products, Würth is a reliable partner for more than four million customers from the trades and industry. Other trading and production companies, known as the Allied Companies, operate in related business areas, ranging from electrical wholesale and electronics to financial services. The performance of the Würth Group is distinguished by customer proximity, services and excellent quality.



Construction works of the new administration building in Künzelsau are scheduled to begin in 2024.

DIVISIONS

AUTOMOTIVE

Targets customers like car garages, vehicle fleets, automotive refurbishers and dealers. Including authorized dealerships of car manufacturers and independent workshops as well as special shops and service providers. Concentrates on consumables for repairs to chemical-technical products for maintenance, servicing and bodywork, and tools for pneumatic and electrical machines.

Cargo Subdivision

Targets customers like authorized dealers and independent workshops as well as specialized workshops and commercial vehicle service providers. Concentrates on fastening, assembly and cleaning products required especially for the maintenance, repair and servicing of commercial vehicles in these segments.

CONSTRUCTION

Encompasses all sales units responsible for serving customers in the buildings industry, extension and facade, finishing trades, construction companies, roofers, plasterers, stucco masons, dry construction firms and direct supplies to building sites.

CSPM Subdivision

Construction-Site-Project-Management Division focuses on larger scale building contractors civil engineering and road construction and offers customized logistics solutions, such as building site containers filled with products.

METAL

Targets customers like metalworking and metal processing industries such as metal & steel fabricators, filters, and machine & vehicle manufacturers. Concentrates on requirements of anchor & dowel systems, tools & electrical machines as well as DIN and standard parts for operating & processing variable metals.

Maintenance Subdivision

Targets customers like in-house repair shops of industrial enterprises, facility and installation maintenance of hotels, airports, sewage plants, clinics and hospitals, theaters, recycling companies as well as garden and landscape specialists. Concentrates on complete product range for minor repairs and products for servicing, maintenance and care.

WOOD

Targets customers in the entire woodworking and wood processing trade, typically interior design and decoration, furniture, windows and doors , exhibition stand manufacturing and installation. Concentrates on product spectrum covers furniture fittings, the entire range of fastening materials and sealing technology as well as tools, machines, abrasives and chemical-technical products.



Würth Gulf

Is part of The Würth Group. We are the supplier of Fasteners, Automotive Chemicals, Hand Tools & Electrical Supplies also Construction, Assembly Items, Sealants, Power Tools & Safety Solutions.
Established in 2000, Würth Gulf FZE is one of the leading suppliers in the Middle-East. Existing industrial companies and developing organizations alike can benefit from the uparalleled selection, quality and unbeatable service that is synonymous with the Würth brand.



OUR VISION

Becoming the number 1 in the eyes of
our customers as the best and most qualified sales team.

OUR MISSION

We love selling.
We inspire our customers.

OUR PRINCIPLES

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respect and appreciation, are straightforward and
predictable in everything we do.
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"Thank You".

WE SERVE THE FOLLOWING MARKET SECTOR:

- Auto Workshops
- Construction Companies
- Industrial Companies
- Metal and Fabrication
- Maintenance and Repair Shops
- Oil and Gas Sector
- All other Manufacturing sectors.

OUR PRODUCT RANGE

- Automotive/Cargo Accessories and Spare Parts
- Chemical Technical Products
- Concrete Anchors and Fixings
- Construction Accessories
- Electrical
- Fasteners/Fittings
- Fire Protection Systems
- General Tools/Equipment
- Hand and Power Tools
- Lubricants and Degreasers
- Master ® Power Tools
- Material Processing
- Orsy® Assortments and Workshop Equipment
- Personal Protective Equipment (PPE)
- Sanitary
- Sealants and Adhesives
- Service and Systems
- Workshop/Garage Equipment



Over 3 million customers

Worldwide, there are over 400 Würth companies in more than 80 countries and more than 70,000 employees on its payroll. This guarantee our customers can rely on our high quality, excellent service and innovative products.

To each customer Würth allocates our Sales Consultant, who is strongly focused on the individual needs of the client. We have adopted this attitude to benefit you, the customer. Our daily commitment helps us to find new approaches so that we always improve. We aim to supply every customer with every article at any time in any place. We therefore have developed modular systems and logistics tailored to the individual needs of the customers. In October 2009, we won the German Logistics Award for this concept.

Our philosophy

We owe it to Prof. Reinhold Würth that the Würth Group has a clear business orientation: It is marked by a strong brand policy, future-oriented product strategy, closeness to the customer, clear quality offensive, thinking in terms of visions and not least by a strong corporate culture. Bettina Würth, Prof. Reinhold Würth's daughter and Chairwoman of the Advisory Board together with the members of the Central Managing Board see to it that these values are filled with life and developed further.

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

2-TRADE LICENSE



حكومة دبي
GOVERNMENT OF DUBAI

DUBAI
للاقتصاد والسياحة
Economy and Tourism

رخصة تجارية
Commercial License

License Details / تفاصيل الرخصة

License No.	572033	رقم الرخصة	
Company Name	WURTH GULF (L L C)	اسم الشركة	وورث جلف (شركة ذات مسئولية محدودة)
Business Name	WURTH GULF (L L C)	الاسم التجاري	وورث جلف (ش ذ م م)
License Category	Dep. of Economic Development	فئة الرخصة	دائرة التنمية الاقتصادية
Legal Type	Limited Liability Company - Single Owner(LLC - SO)	الشكل القانونى	شركة ذات مسؤولية محدودة - الشخص الواحد (ذ.م.م)
Expiry Date	05/08/2026	تاريخ الإنتهاء	Issue Date 06/08/2005 تاريخ الإصدار
D&B D-U-N-S ® N	561529749	الرقم العالمى	Main License No. 572033 رقم الرخصة الام
Register No.	1778252	رقم السجل التجارى	DCCI No. 99967 عضوية الغرفة

License Members / الاطراف

رقم الشخص/No.	الإسم / Name	الجنسية / Nationality	الصفة / Role	الحصص / Share
1162256	وورث جلف م م ح WURTH GULF FZE	United Arab Emirates / الامارات	Shares Owner / مالك حصص	100.00%
1070435	جيان لوس مارسيل تيسمار JEAN LUC MARCEL THESMAR	فرنسا / France	Manager / مدير	
1162255	موكانى توفيق احمد موكانى اقبال احمد MOOKANE THAUFEEQUE AHMED MOOKANE IQBAL AHMED	الهند / India	Manager / مدير	

License Activities / أنشطة الرخصة

النشاط	الحالة	Status	Activity
تجارة المواد المقاومة والمانعة لإنتشار الحريق	فعال	Active	Fire Resistant & Retardant Materials Trading
تجارة عامة	فعال	Active	General Trading

Print Date 07/08/2025 20:09 تاريخ الطباعة

Receipt No. رقم الإيصال

الإمـــارات
THE EMIRATES

يمكنك الآن تجديد رخصتك التجارية من خلال الرسائل النصية القصيرة، أرسل رقم الرخصة إلى 6969 (دو/ اتصالات) للحصول على اذن الدفع.

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وثيقة إلكترونية معتمدة وصادرة بدون توقيع من دائرة الاقتصاد والسياحة في دبي .لمراجعة صحة البيانات الواردة في الرخصة يرجي مسح رمزالاستجابة السريعة

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العنوان / Address

صندوق بريد	17036	P.O. Box	
رقم القطعة	613-767	Parcel ID	
البريد الإلكتروني	mohamed.elsadig@wurth.ae	Email	

محل 02 ملك علي احمد خلفان - بردبي - راس الخور الصناعية الثانية

تليفون	971-4-8834229	Phone No	
فاكس	971-4-8834303	Fax No	
هاتف متحرك	971-50-7098917	Mobile No	

الملاحظات / Remarks

نقل الموقع بتاريخ 5/5/2015

رقم الإيصال Receipt No.

تاريخ الطباعة 20:09 07/08/2025 Print Date

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GOVERNMENT OF DUBAI

دبي للاقتصاد والسياحة
Economy and Tourism

شهادة شهر قيد شركة فى السجل التجارى
Commercial Register

تفاصيل القيد / Register Details

رقم القيد	1778252	Register No.	
الاسم التجاري	وورث جلف (شركة ذات مسئولية محدودة)		
الشكل القانونى	شركة ذات مسؤولية محدودة - الشخص الواحد (ذ.م.م.)		
تاريخ الإصدار	03/08/2005	Reg. Date	
الرقم العالمي	561529749		

Main Lice. Nr	572033	رقم الرخصة الأم	
Business Name	WURTH GULF (L L C)		
Legal Type	Limited Liability Company - Single Owner(LLC - SO)		
Expiry Date	05/08/2026	تاريخ الإنتهاء	
D&B D-U-N-S ® No.			

تفاصيل راس المال / Capital Details

الإسمى	300,000.00	Nominated	
المدفوع	300,000	Paid	
عدد الأسهم	300	No. of Shares	
العملة	درهم إماراتي	Currency	UAE Dirhams

عنوان الرخصة / License Address

عنوان السجل التجاري / Commerce Address

محل 02 ملك علي احمد خلفان - بردبي - راس الخور الصناعية الثانية

أنشطة السجل / Register Activities

تجارة المواد المقاومة والمانعة لإنتشار الحريق	Fire Resistant & Retardant Materials Trading
تجارة عامة	General Trading

Print Date	07/08/2025	20:09	تاريخ الطباعة	Receipt No.	رقم الإيصال

الإمارات
THE EMIRATES

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الفروع / Branches

رقم الرخصة License No	الاسم التجارى Business Name
961444	وورث جلف (ش ذ م م) (فرع) WURTH GULF (L L C) (BRANCH)
1007865	وورث جلف (ش ذ م م) (فرع) WURTH GULF (L L C) (BRANCH)
1218999	وورث جلف (ش ذ م م) (فرع) WURTH GULF (L L C) (BRANCH)

يمكنك الآن تجديد رخصتك التجارية من خلال الرسائل النصية القصيرة، أرسل رقم الرخصة إلى 6969 (دو/ اتصالات) للحصول على اذن الدفع.

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Receipt الرصيد

Receipt Date	**07/08/2025**	**تاريخ الإيصال**	**Receipt No**	**16705333**	**رقم الإيصال**
Business Name	WURTH GULF (L L C)			ورث جلف)ش ذ م م(	**اسم الشخص**
Procedure	Renew License,Modify Location			Renew License,Modify Location	**نوع الاجراء**
P.V.Nr.	**24404931**	**رقم إذن الدفع**	**License Nr.**	**572033**	**رقم الرخصه**
Payment Mode	eGovernment Online Payment			eGovernment Online Payment	**كيفية الدفع**
Amount in Words	Twenty One Thousand Eight Hundred and Fifteen Dirhams			واحد وعشرون الفا وثمانمئة وخمسة عشر درهما	**القيمة بالحروف**

Print Date 07/08/2025 20:09 **تاريخ الطباعة** **Receipt No.** **رقم الإيصال**

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حكومة دبي
GOVERNMENT OF DUBAI

دبي
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Economy and Tourism

عزيزي التاجر،،

يرجى اخذ التعليمات التالية بعين الاعتبار:

1. عدم القيام بتغيير موقع الترخيص والانتقال الى موقع اخر دون الحصول على موافقة الدائرة.

2. ضرورة ان يكون الاسم التجاري المدون على اللافتة مطابق للاسم المدون بالرخصة مع ضرورة كتابته بحجم واحد.

الحرص على أن تكون اللافتة باللغتين العربية والانجليزية و بالشكل التالي:

- يكتب الاسم التجاري باللغة العربية في يمين اللافتة وباللغة الإنجليزية تجاه اليسار.

- يكتب الاسم التجاري باللغة العربية بنفس حجم الاسم المكتوب باللغة الانجليزية

- يكتب الاسم التجاري باللغة العربية أعلى الاسم المكتوب باللغة الانجليزية

3. الحرص على استخراج تصريح للافتات الاضافيه والعلامات التجارية على اللافتة.

4. عدم تظليل الواجهة أكثر من 50%

5. عدم العمل لساعات اضافية بعد الساعة 12:00 بعد منتصف الليل الا بعد استخراج تصريح.

6. عدم اجراء التنزيلات او التصفيات او العروض الخاصه بدون تصريح.

7. عدم اجراء اي تعديل او تغيير بيانات الترخيص الا بعد الرجوع للدائرة.

8. الالتزام بكتابة الاسعار على السلع والبضائع.

9. طباعة ووضع بطاقة حماية المستهلك (كن على حق واعرف حقوقك كمستهلك) في مكان بارز من موقع الدائرة www.consumerrights.ae

10. للمستهلك الحق في الحصول على فاتورة الشراء.

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12. عدم الترويج عن منتج عن طريق المندوبين، أو الاتصال أو غير ذلك وعدم البيع بطريقة المناداه

13. استخراج تصريح لمستودعات التخزين الخاصة بالمنشأة المرخصة أو تصريح للمكاتب الإضافية أو الاكشاك.

14. يجب على المطاعم وضع قائمه الطعام باللغتين العربيه والانجليزيه.

15. يجب وضع واعتماد قائمة الاسعار الخاصة بالصالونات الرجالية والنسائية ووضعها في مكان بارز.

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WÜRTH

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

3-Method of statement



WÜRTH GULF FZE STRUCTURAL GLAZING TECHNICAL MANUAL

Wurth Gulf FZE-Plot # S61303, Jebel Ali South 6 ,Dubai ,U.A.E - P.O.Box:17036
T: +9714 8809991, 04 8834229(old), F: +971 4 8809255, 04 8834303(old), E: wurthglf@emirates.net.ae - www.wurth.ae

CONTENTS

CONTENTS 1

INTRODUCTION 3

SIGNIFICANCE AND USE 3

PRODUCT OFFERING 5

STRUCTURAL GLAZING SEALANTS 5

GENERAL DEFINITIONS 5

WÜRTH 2-C SGS 5

WÜRTH 1-C SGS 5

SILICONE STRUCTURAL GLAZING 6

COMMON SYSTEM DESIGNS 6

2 SIDED STRUCTURAL GLAZING 6

3 AND 4 SIDED STRUCTURAL GLAZING 7

PREDESIGN CONSIDERATIONS 8

ROLES OF MAJOR PARTICIPANTS 8

PERFORMANCE CRITERIA CONSIDERATIONS 10

GENERAL 10

STRUCTURAL LOADS 11

STRUCTURAL JOINT DESIGN 11

STRUCTURAL SEALANT JOINT TERMINOLOGY 11

SEALANT SELECTION 12

COMPATIBILITY 12

ADHESION 12

STRUCTURAL BITE CALCULATION 13

DEADLOAD 14

GLUELINE THICKNESS 15

STRUCTURAL SILICONE USED IN SEISMIC APPLICATIONS 17

STRUCTURAL GLAZING GUIDELINES 17

SUBSTRATE AND ACCESSORY SUITABILITY 17

METALS: 17

ALUMINUM: 18

MASONRY: 18

INSULATING GLASS 18

BACK-PAINTED GLASS 18

LAMINATED GLASS CONSIDERATIONS 18

ACCESSORIES 18

STRUCTURAL SILICONE SEALANT APPLICATION PROCEDURES 19

CLEANING 19

PRIMER APPLICATION PROCEDURE 19

SEALANT APPLICATION PROCEDURE 19
1-C & 2-C SGSS APPLICATION *20*
SEALANT CURE REQUIREMENTS 20
REPLACEMENT GLAZING DUE TO INDIVIDUAL UNIT BREAKAGE 21
FIELD ADHESION TEST *21*

QUALITY CONTROL **22**

1-C SGSS QUALITY CONTROL 22
SHELF LIFE AND STORAGE CONDITIONS *22*
SKIN-OVER TIME/ELASTOMERIC TEST *22*
2-C SGSS QUALITY CONTROL 22
SHELF LIFE AND STORAGE CONDITIONS *22*
MATERIAL INSPECTION *22*
APPLICATION TEMPERATURES: *23*
MIX RATIO 23
BUTTERFLY TEST *23*
APPARATUS *23*
PROCEDURE *23*
RESULTS *23*
REPORT *23*
CURING TIME 24
SNAP-TIME TEST *24*
ADHESION TESTING 26
PEEL-IN-ADHESION TEST *26*
DEGLAZING 26
DEGLAZING FREQUENCY *27*
DEGLAZING PROCEDURE *27*

QUALITY ASSURANCE AND WARRANTY **28**

INTRODUCTION 28
MATERIAL PERFORMANCE WARRANTY 28
PROJECT STRUCTURAL APPLICATION WARRANTY 28
PROJECT CHECKLIST *29*
PRODUCT QUALITY CONTROL LOG – 1-C SGSS *49*
PRODUCT QUALITY CONTROL LOG – 2-C SGSS *50*

INTRODUCTION

This document contains recommendations, application procedures and QC/QA standards deemed necessary for application of WÜRTH brand silicone sealants for structural bonding purposes. This manual provides information useful to design professionals, contractors, and others for the design and installation of a SSG system.

Since each area has its own construction industry variables, such as design codes, customer requirements and environment aspects, this manual cannot be considered for applications outside the GCC region.

This manual is based on the guidelines of ASTM C1401 - 14 Standard Guide for Structural Sealant Glazing and our knowledge of product performance as determined through laboratory testing that is carried out through WÜRTH Gulf FZE.

WÜRTH Gulf FZE assumes no responsibility for the product performance beyond the limits that are strictly declared in our datasheets and the guidelines of this manual and accordingly disclaims any warranty or responsibilities for such performances.

Notice: This manual does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use

SIGNIFICANCE AND USE

This guide will assist in the identification and development of, among others, performance criteria, test methods, and industry practices that should be implemented to obtain the required structural glazing sealant adhesion and compatibility with other system components.

Although this guide has been arranged to permit easy access to specific areas of interest, it is highly recommended that the entire guide is read and understood before establishing the requirements for a particular SSG system.

This guide should not be the only criteria upon which the design and installation of a SSG system is based. The information herein is provided to assist in the development of a specific program with a goal of achieving a successful SSG system installation. Information and guidelines are provided for the evaluation, design, installation, and maintenance of a SSG system and many of its various components. Considering the range of properties of structural glazing silicone sealants, as well as the many types of framing system designs, material combinations that can be used, various material finishes, and the many types

and varieties of accessories, the information contained herein is general in nature.

Generally, the design, fabrication, and installation of a SSG system requires more technical knowledge and experience then is required for a conventionally glazed window or curtain wall system. To ensure the success of a SSG system, it is important that fabricators, and installers of materials and components have a sound knowledge of SSG system requirements and become involved in the design and planning for each application.

PRODUCT OFFERING

STRUCTURAL GLAZING SEALANTS

GENERAL DEFINITIONS

Structural sealant glazing, hereinafter referred to as SSG, is an application where a sealant not only can function as a barrier against the passage of air and water through a building envelope, but also primarily provides structural support and attachment of glazing or other components to a window, curtain wall, or other framing system.

WÜRTH Gulf FZW has developed a line of high-performance silicone structural sealants exclusively designed to serve the hot gulf weather. Following is a brief summary of the two main WÜRTH products offered for structural glazing applications. Additional information on these sealants may be retrieved from technical datasheets or through WÜRTH Gulf FZE product department.

WÜRTH 2-C SGS

WÜRTH 2-C SGS Structural Glazing Sealant is a two-component, fast-cure, neutral-curing silicone sealant intended for structural bonding of glass, metal and other building components, as well as weather seals in curtain wall units. WÜRTH 2-C SGS cures to a high modulus adhesive sealant with excellent adhesion to a wide range of substrates. The item has the below technical characteristics

Compliance to ASTM C920: Two component NS, Class 50, NT, M, G, A
Compliance to ASTM C1184
Double-component, neutral curing. High modulus, high elasticity.
Temperature resistant, flexible, non-corrosive, pollution-free sealant body after cure.
Excellent unprimed adhesion to most common building substrates.

WÜRTH 1-C SGS

WÜRTH 1-C SGS Structural Sealant is a one-part, medium modulus, neutral-curing silicone sealant with superior unprimed adhesion for structural glazing applications.

ASTM C920: Single component NS, Class 50, NT, M, G, A
Compliance to ASTM C1184
Single-component, neutral curing. High modulus, high elasticity.

Temperature resistant, flexible, non-corrosive, pollution-free sealant body after cure.
Excellent unprimed adhesion to most common building substrates.

Primers
WÜRTH Gulf FZE has a full line of high-performance primers for sealants. Primers are used to enhance adhesion of sealants to specific substrates.

For detailed information about specific silicone products please refer to the most recent Technical Data Sheets (TDS) and Material Safety Data Sheets (MSDS).

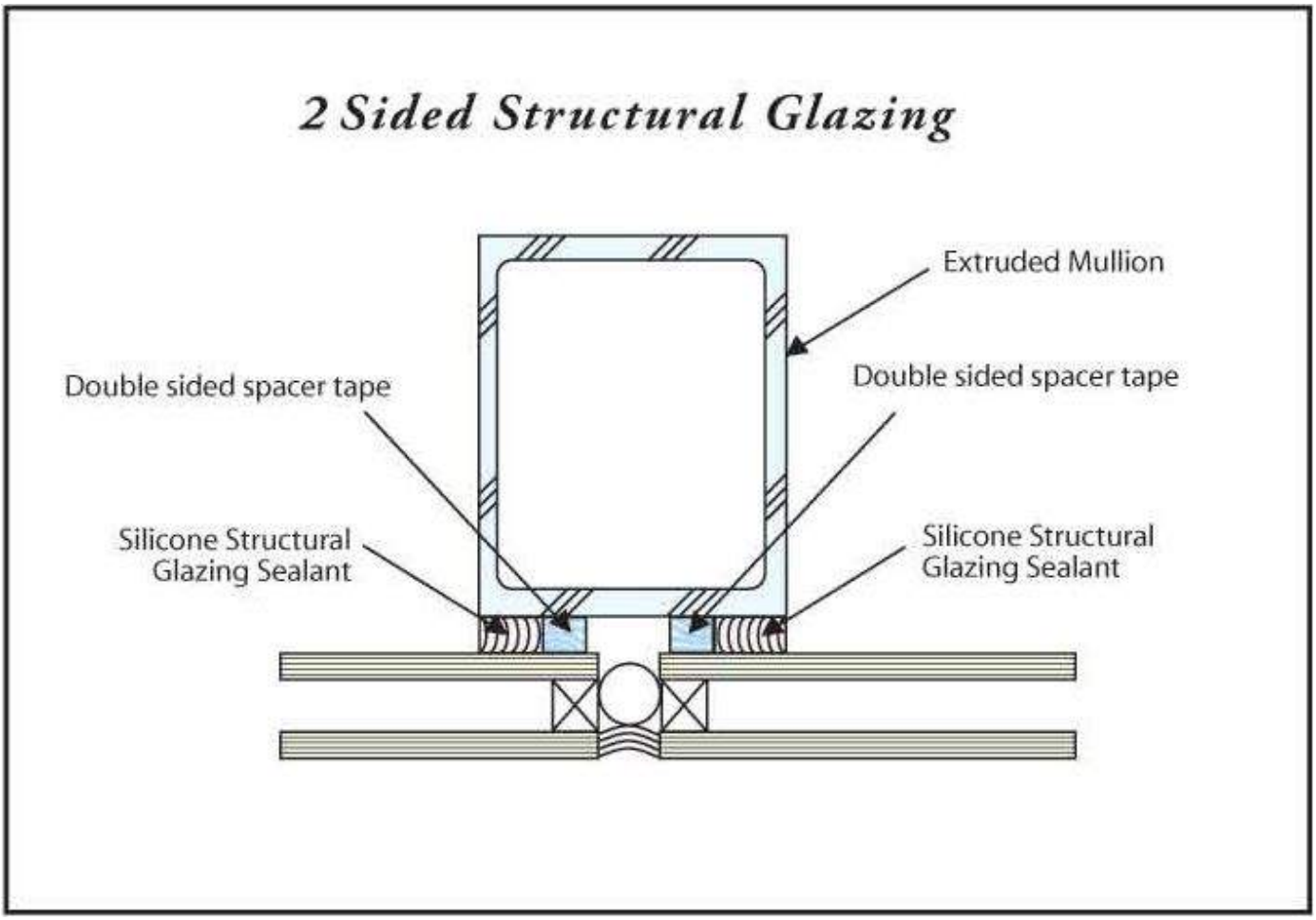
SILICONE STRUCTURAL GLAZING

COMMON SYSTEM DESIGNS

Silicone Structural Glazing (SSG) is a method of attaching a glass panel to a metal frame using a structural silicone adhesive sealant. The sealant contact dimension (bite) and thickness are designed to provide a method of structural support to glass, an airtight and weather-tight seal and a flexible connection that absorbs differential movements between dissimilar materials from wind, thermal or seismic loading. The joints are not intended to absorb live load movements due to floor loadings.
This method of glass attachment provides a smooth exterior glass facade on a building either as a 2 sided, 3 sided or 4 sided system.
Projects with 3 or 4 sided silicone structural glazing are recommended to be glazed in the factory and WÜRTH Gulf FZE must review all design drawings and details.
The QC procedures used when such structural silicone glazing is performed in the factory potentially results in a better overall glazing system. Such QC procedures are further detailed in this manual

2 SIDED STRUCTURAL GLAZING

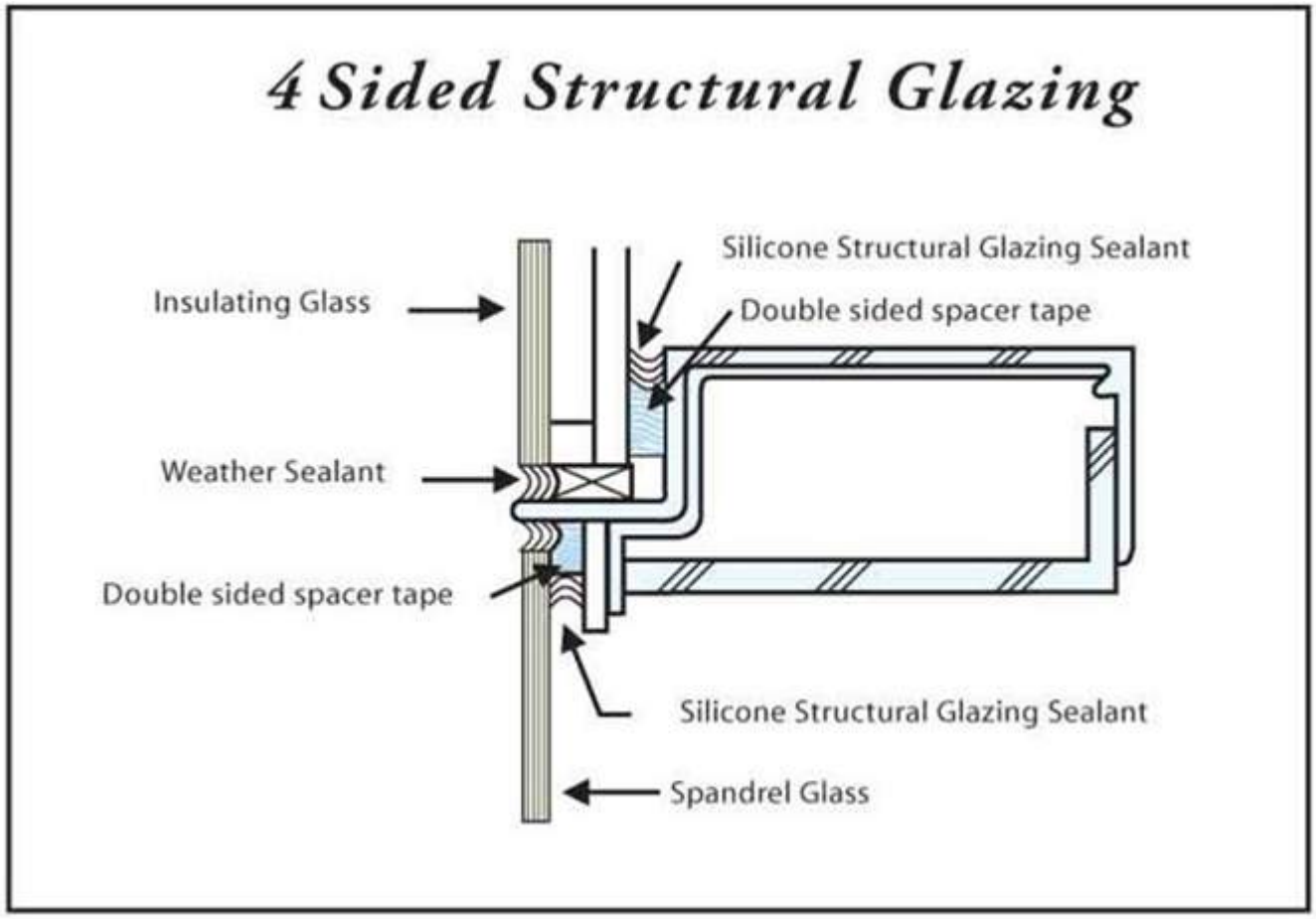
Involves adhering the glass or cladding to Aluminium on opposite sides, either vertically or horizontally, with the other two edges held captive with an Aluminium bead or cover strip. Generally an on-site application.



3 AND 4 SIDED STRUCTURAL GLAZING

Involves adhering the glass or cladding to Aluminium on three or four sides achieving a totally flush, frameless external appearance.

It requires specific design and QA procedures and should only be glazed in a factory environment.



PREDESIGN CONSIDERATIONS

ROLES OF MAJOR PARTICIPANTS

General–Responsibility for the design, implementation, and maintenance of a SSG system depends largely on the contractual relationships between the participants and their extent of participation. This relationship can vary on individual projects, but it should be established clearly at the beginning and understood by all concerned parties. The following descriptions briefly describe the normal roles and duties generally ascribed to the participants, which usually is adequate for the development of a SSG system.

A. *Building Owner*– the building owner should review and approve the design concept and budget for the development and implementation of a SSG system. It is the building owner's responsibility to establish and maintain a realistic post-construction inspection and testing program to evaluate structural sealant integrity. Typically, the building owner also should authorize required maintenance, structural repairs, and replacement of components expeditiously.

B. *Architect*–the architect should provide the basic system design concept, performance criteria, and a cost estimate for the owner's review and approval. The architect also should provide the owner with an explanation of the SSG system design concept, degree of risk involved, and maintenance and eventual replacement requirements. The architect has

the responsibility to conduct a feasibility review of the basic design concept, system features, and material requirements with potential manufacturers and contractors. The architect also should engage a SSG system consultant, if one is needed, and provide contract documents (working drawings and specifications) in accordance with the chosen construction method and the architect's professional services agreement. Construction administration by the architect usually includes, among others, shop drawing, product data, sample review, and approval or other appropriate action. The architect also makes on-site visits in accordance with the professional services agreement.

C. *Consultant*–a consultant usually is engaged by the architect but also can be engaged by the general contractor, curtain wall subcontractor, or the owner. The consultant provides guidance and technical expertise and establishes requirements for the design and implementation of the SSG system, among others.

D. *Building Code Authority*–all codes accept traditional glazing with conventional mechanical glazing retainage; however, some jurisdictions may permit SSG systems only with supplementary mechanical retainage. Other code jurisdiction requirements can include, among others, establishment and certification of specific structural sealant material properties, controlled inspection of a SSG system installation, and post installation periodic inspection and certification programs. For example, the ICBO Evaluation Service, Inc., a subsidiary of the International Conference of Building Officials (ICBO), which publishes the Uniform Building Code (UBC), requires fulfillment of certain criteria before a structural sealant is acceptable for use in jurisdictions that have adopted the UBC. Code acceptance criteria may involve testing and conditions of testing that normally are not conducted by structural sealant manufacturers or require conditions of use that will limit the type and character of a SSG system. Additionally, other code requirements for example impact resistance may also have an effect on the design of an SSG system (See 8.6) the building code and the specific code jurisdiction authorities should be consulted prior to any SSG system detailed design.

E. *Contractor*–the contractor selects the subcontractors and reviews, approves, and submits to the architect submittals, such as shop drawings, product data, and samples. The contractor also performs the construction and other services in accordance with the contract documents and the approved submittals. Supervision, direction, and coordination of the construction and other services, to assure compliance with the contract documents, also is performed by the contractor. Most importantly, the contractor has the responsibility for and control of construction means, methods, techniques, sequences, and procedures unless the contract documents direct otherwise.

F. *SSG System Designer*–this responsibility often is the architect's, however, a SSG system consultant or a curtain wall subcontractor also can perform this work. Responsibilities include the design of the SSG system to meet the architect's design parameters and performance criteria and development of specific material selection criteria for glass, panels, metal finishes, sealants, gaskets, and other SSG system components. Importantly, the system designer also should develop a SSG system that can be resealed or reglazed, easily and adequately, if glass, sealant, or other component replacement is necessary.

G. *SSG System Subcontractor*–Responsibilities include obtaining the approval of, among others, panel, metal finish, glass, and sealant manufacturers for use of their products in a SSG application; preparation and submittal of shop drawings to the general contractor for processing and approval; and, fabrication and installation of the SSG system in accordance with, among others, the contract documents, approved shop drawings, mock-ups, and component manufacturer's recommendations. Sometimes a separate SSG system installation subcontractor is retained. Coordination between the system manufacturer and the installer is required.

H. *Metal Framing Fabricator or Supplier*–Responsibilities include coordinating with the metal supplier and the finish applicator; monitoring of metal surface finish quality control; and, approval of the product for the specific SSG

application. The metal framing fabricator also has the responsibility to provide representative production run samples of metal finishes for adhesion and compatibility evaluation by the structural sealant manufacturer.

I. *Glass Manufacturer or Fabricator*–Responsibilities include review of the project design requirements; recommendation of glass thickness and type to meet, among others, wind load and thermal stress conditions as specified for the SSG system; quality control of the secondary seal of insulating glass units and any glass coatings, such as reflective or low emissivity; and, approval of the glass product(s) for a specific SSG application. The glass manufacturer also has the responsibility to provide production run representative samples of the glass type(s) for adhesion and compatibility evaluation by the structural sealant manufacturer. The glass manufacturer also has the responsibility to determine with the cooperation of the fabricator of the insulating glass units, if a separate party, the compatibility of at least the structural sealants and accessories that may have an effect on the performance of the insulating glass unit edge seal.

J. *Panel Manufacturer or Fabricator*–Panel types include metal, composite, plastic, and stone among others (See Section 23). Responsibilities include: review of the project design requirements; recommendation of panel type to meet, among others, wind load and thermal stress conditions as specified for the SSG system; quality control of any panel finishes or coatings and approval of the panel product(s) for a specific SSG application. The panel manufacturer also has the responsibility to provide production run representative samples of the panel type(s) for adhesion and compatibility evaluation by the structural sealant manufacturer.

K. *Structural Sealant Manufacturer*–Responsibilities include conducting structural sealant compatibility testing with, among others, spacers, gaskets, setting blocks and other sealants; adhesion testing of the structural sealant(s) to the panel surface, metal finish and glass substrates; review and approval of the structural sealant joint dimensions provided by the SSG system designer; recommendation of a sealant(s) for the structural and weather seals, as well as, if necessary, a primer; and approvals of the sealant products for the specific SSG application.

L. *Accessory Material Suppliers*–Accessory material suppliers have the responsibility to provide spacers, gaskets, setting blocks and other products of the correct material formulation, hardness, shape, and tolerances as specified by the architect, consultant, or SSG system designer. The accessory material supplier also has the responsibility to provide production run representative samples of the accessories for adhesion and compatibility evaluation by the structural sealant manufacturer.

PERFORMANCE CRITERIA CONSIDERATIONS

GENERAL

Typical performance criteria that are applicable to a conventional glazing system also apply to a SSG system; however, some of these performance criteria may require different treatment, extra care, or additional criteria. The following typical performance criteria are described where SSG issues need to be considered. Typically, some combination of the following structural loads and movements, depending on an engineering analysis of a particular SSG system's design requirements, may have to be considered. For example, the effect of wind load and thermal movement is a commonly encountered combination that may have to be evaluated when designing a structural sealant joint. Additional general glazing, as well as performance criteria information, is available from industry associations.

STRUCTURAL LOADS

Dead–A SSG system, depending on a particular design, may require the structural sealant joint to resist a constant dead load stress. This usually occurs when glass or panels are unsupported by setting blocks or other mechanical devices and also at suspended soffit construction. The allowable dead load stress for design will depend on the modulus of the structural sealant and the dimensions of the structural sealant joint.
Our structural silicones are designed to permit dead load stressing of the structural sealant to no more than 7 kPa (1 psi).

Wind–the realistic establishment of negative and positive wind loads is important. It is primarily the wind loading conditions, except for some seismic zones, which determine the size and shape of a structural sealant joint in a SSG system. Other secondary loading conditions, such as dead load and thermal movement also can contribute to the design of a structural sealant joint. The building code applicable to a SSG system will establish minimum requirements for the wind load to be resisted by a curtain wall or window system and therefore a SSG system. The ASCE standard ANSI/ASCE 7, which also is referenced in some of the national model building codes, provides a detailed analysis and description of the wind loads to be resisted by a curtain wall or window system. The building code and the ANSI/ASCE 7 determined wind load values typically apply to buildings of square or rectangular shape with vertical walls.

Seismic design largely is based on probability and economics. The magnitude and frequency of seismic loads cannot be determined with the same degree of accuracy as other types of building loads. It is possible the magnitude of loading may vary by a factor of two or more; therefore, due to economic reasons, a commonly accepted earthquake design philosophy is to control major structural damage while allowing some minor nonstructural damage as a result of an earthquake.

STRUCTURAL JOINT DESIGN

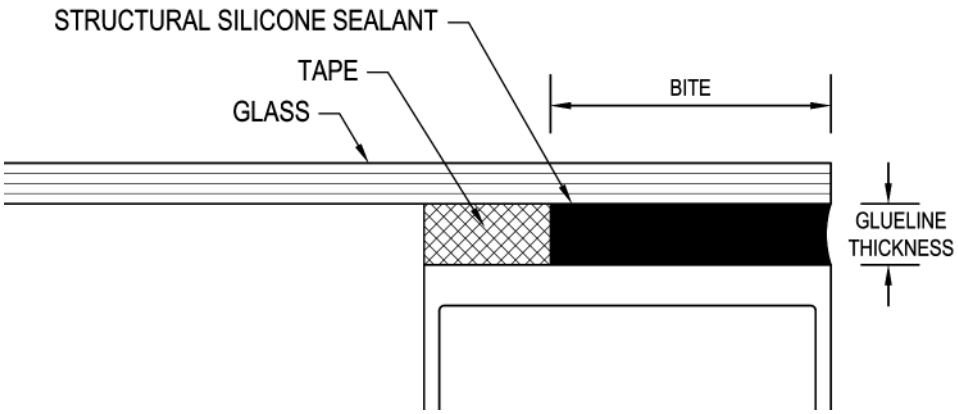
STRUCTURAL SEALANT JOINT TERMINOLOGY

General–since the beginning of the SSG industry, nomenclature for structural joint terminology has been varied, sometimes confusing, and occasionally creative. The words bite and glueline thickness offer the most concise and easily remembered terms for the two most often used structural joint descriptors. These two terms are defined in below and illustrated by Fig. 1

Bite–this term is similar to its use for a conventionally glazed system, where it refers to the overlap of a glass lite or panel edge by a conventional glazing system, thereby permitting the transfer of an applied load from a glass lite or panel to the framing system. Bite refers to the effective structural contact dimension of the structural sealant that through its adhesion to the substrates, transfers an applied load from a glass lite or panel to the metal framing system

Glueline *Thickness*–this term refers to the minimum structural sealant dimension or thickness that is acceptable between structurally bonded surfaces or substrates. To permit the proper application of a structural sealant into and filling a joint opening, a minimum dimension needs to be maintained. For shop or factory glazing, an opening as small as 5 mm (3⁄16 in.)

has been glazed successfully. For construction site glazing, an opening no less than 6 mm (1/4 in.) is required for proper sealant application. Thickness also is dependent on the joint opening bite. The greater the bite, the greater the required thickness to allow proper and complete sealant filling of the joint opening. The thickness of a structural sealant joint also is dependent on an analysis of the interaction of the structural sealant modulus with the primary stress, usually from an applied lateral load, and with other secondary loads, such as those resulting from differential thermal movement between a metal framing system and a structurally glazed glass lite and panel.



SEALANT SELECTION

The selection and use of a structural sealant for a particular application will depend on several criteria. All of WÜRTH Structural Silicones meet and exceed C 1184, with compatibility to most substrates of SGSS industry. Sealants in general must develop adequate adhesion to its substrates, must have an appropriate design factor, and must have ultimate and design strengths suitable for the application. The following generally describes considerations for use in establishing these criteria.

COMPATIBILITY

Sealants for structural seals should be tested for compatibility amongst themselves and with materials and finishes they contact or are in close proximity. Materials and finishes, with time and exposure to the ultraviolet component of sunlight, can exude or release plasticizers or other materials into a sealant, which can cause a sealant to change color or lose adhesion. Also, these accessories can have surface residues or contaminants from manufacturing that can migrate into the structural sealant. A change of color is evidence of a potentially detrimental chemical reaction, and although adhesion may not be initially lost, the color change could be predictive of a future loss of adhesion. Other structural sealant characteristics that also could be affected by incompatibility with an accessory include the sealant's ability to fully cure, its ultimate strength development and its aesthetic qualities. WÜRTH will provide confirmation of compatibility of the proposed SGSS system components.

ADHESION

Structural sealant glazing is *adhesion*. Obtaining and then maintaining long-term adhesion of a structural sealant is the primary variable in a successful installation. WÜRTH determines what is necessary to achieve adequate adhesion, and if a primer or surface conditioner is necessary. The design professional can request test information to qualify substrates unique to each application.

Design Factor– With a minimum ultimate structural sealant strength of 345 kPa (50 psi), as required by ASTM Specification C 1184, and a SSG industry recommended maximum design strength of 139 kPa (20 psi) a minimum design factor of 2.5 is considered for all WÜRTH Structural Silicones.

Design Strength– The SSG industry, by consensus, has limited the design tensile strength of a structural sealant to a maximum of 139 kPa (20 psi). Using a design tensile strength value in excess of 139 kPa (20 psi) should not be used and is not guaranteed even if the material is tested to achieve multiples of that limit. The 139 kPa limit has proven by experience to be a wise choice.

STRUCTURAL BITE CALCULATION

The total structural bite is calculated from windload and deadload of the glass itself, the following formula shall be used to determine the required structural bite dimension:

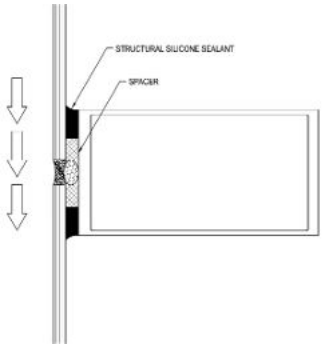
$$Bite_{wind}\ mm = \frac{0.5\ (short\ span\ .wind\ load\ (kPa)}{138\ kPa}$$

For example, a 2000 mm x 1500 mm lite of glass, exposed to a 5.0 kPa windload, requires a silicone bite of 28 mm.

DEADLOAD

In unsupported deadload designs, the weight of the panel places constant load upon the sealant.
WÜRTH structural sealants can support the weight of the panel or glass when used within the following guidelines:

The allowable deadload design strength is 1 psi or 7 kPa.
The weight of the panel divided by the total silicone contact area must not exceed 7 kPa, the deadload design strength of the sealant. Insulating glass unit manufacturers require deadload support for their insulating glass units.



The deadload structural bite requirement is calculated as follows

$$\text{Bite}_{dead}\, mm = \frac{weight\ of\ glass\ N}{perimeter\ of\ SGSS\ in\ meters\ X\ SGSS\ Design\ Stress\ \ 7.0\ kPa}$$

Or alternatively;

$$SGSS\ Design\ Stress\ \ 7.0\ kPa\ = \frac{weight\ of\ glass\ N}{perimeter\ of\ SGSS\ in\ meters\ X\ \text{Bite}_{dead}\, mm}$$

For example, a 2000 mm x 1500 mm lite of glass at a weight of 160 N/m^2 will have a weight of 480 N and a glass perimeter of 7 meters. Based on 7 kPa deadload design strength, a bite of 10 mm is required.

Overall thickness

The overall thickness is based on stresses obtained from perpendicular normal load due to wind and vertical shear load due to deadload. This is calculated using Mohr Circle representing shear and normal stress interaction as follows

$$Bite_{Total} = \frac{Bite_{wind}}{2} + \sqrt{\left(\frac{Bite_{wind}}{2}\right)^2 + (Bite_{dead})^2}$$

The total bite in the above example would be 32 mm.

GLUELINE THICKNESS

The specified minimum glueline thickness for WÜRTH SGSS is 6 mm. It shall be taken into consideration that the glueline can withstand the anticipated movement given the maximum temperature change while holding the bite to glueline thickness to a ratio of 3:1 to assure curing of one part sealants. Greater ratios of bite to glueline may be possible for two part SGSS.

All structural glazing panels would undergo expansion and contraction due to changes in temperature and loading. The thermal expansion can be calculated from the differential movement between glazing and framing element in accordance to the below formula

The calculation procedure for the differential movement is according to the following formula

$$\Delta_x\ (mm)\ =\ l_x\ (mm)\ *\ (CTE_{Glazing} - CTE_{Frame}\ (mm/mm/°C)\ *\ temperature\ change\ (°C)$$

$$\Delta_y\ (mm)\ =\ l_y\ (mm)\ *\ (CTE_{Glazing} - CTE_{Frame}\ (mm/mm/°C)\ *\ temperature\ change\ (°C)$$

Where

$\Delta x, \Delta y$: Differential movement between glazing and framing element in each direction

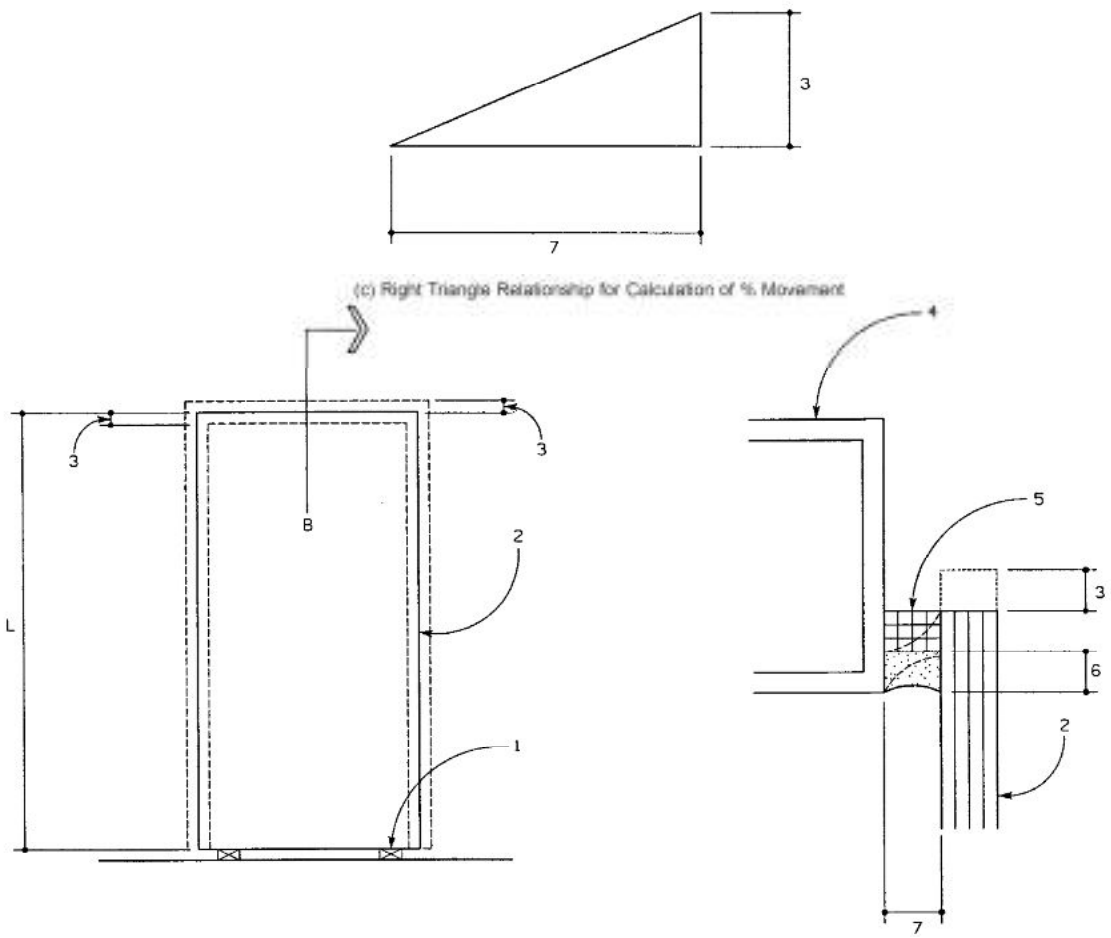
l_x, l_y : Dimension of panel in each direction

$CTE_{Glazing}, CTE_{Frame}$: Coefficient of thermal expansion for glazing and frame elements.

The differential movement is then applied to calculate total movement using the Pythagorean Theorem as follows

$$\Delta_{total} = \sqrt{\Delta_x{}^2 + \Delta_y{}^2}$$

The rule is that this total movement shall not be greater than 15% of the glueline thickness.



(c) Right Triangle Relationship for Calculation of % Movement

(a) Elevation of a Lite or Panel on Setting Blocks

(b) Detail at Top of Lite or Panel

LEGEND

(1) Setting Block
(2) Glass Lite or Panel
(3) Differential Thermal Movement (ΔL)
(4) Metal Framing System
(5) Spacer
(6) Bite (B)
(7) Thickness (T)

STRUCTURAL SILICONE USED IN SEISMIC APPLICATIONS

The allowable design limit for seismic movement capability is 20% in any structural silicone joint.

In accordance with ASTM C 1184, the allowable movement is based on a SSG sealant with an ultimate strength of no less than 50 psi (345 kPa).

STRUCTURAL GLAZING GUIDELINES

- Structural bite ≥ 6mm.
- Glueline thickness ≥ 6mm.
- Structural bite ≥ Glueline thickness
- Bite-to-glueline ratio must be between 1:1 and 3:1 for one part SGSS.
- Bite-to-glueline ratio can be more than 3:1 with the assurance of proper wetting and mixing for two component SGSS.
- The joint needs to be filled witted with sealant using ordinary filling procedure.
- Sealant shall be exposed to air to allow for adequate curing. No weather sealing allowed prior full curing.
- Sealant joint must be clamped/fixed until fully cured before moving or installation in field.

SUBSTRATE AND ACCESSORY SUITABILITY

WÜRTH Gulf FZE Product Department include substrate suitability testing according to ASTM standards.

Such tests are only made for compatibility of substrates with WÜRTH SGSS and accordingly shall not be interpreted as substrate approvals. For the validity of warranty the consent of WÜRTH Gulf FZE on the proposed substrate need to be obtained prior to starting fabrication.

METALS:

SSG can be used with many different types of metal framing systems, Aluminum, steel, and stainless steel are metals that usually are considered for the fabrication of framing members. Ferrous metals, even if galvanized or painted, or both, should not be considered due to their potential to corrode with environmental exposure. For structural sealant glazing, the metal framing finish is a structural part of the SSG system since the integrity of the system depends on adequate adhesion of then structural sealant to the finish. The below shall be noted.

ALUMINUM:

Shall have a flat surface with no grooves or other irregularities. It shall also have a width adequate for the calculated structural bite and spacer.

Extruded mill finish aluminum shall be avoided.

Anodized and organic coating

Carbon Steel, Painted Steel & Galvanized Steel: Not approved as substrates for SGSS.

MASONRY:

Not approved as a substrate for SGSS for durability concerns.

INSULATING GLASS

Consult WÜRTH Product department for technical compatibility.

BACK-PAINTED GLASS

Back-painted glass is not an appropriate substrate. Consult WÜRTH Product department for technical compatibility if back-painted glass in which the edges have been deleted or not coated along the structural sealant bite.

LAMINATED GLASS CONSIDERATIONS

Laminated glass, sometimes referred to as safety glass, which is manufactured with an interlayer, typically ranging in thickness from 0.4 to 0.23 mm, and meeting the requirements of Specification C 1172, may be used in SSG applications upon consultation with WÜRTH Product department for technical compatibility.

ACCESSORIES

Gaskets, spacers, and setting blocks used in structural glazing must be fully compatible with SGSS in accordance to ASTM C 1087. Consult with WÜRTH Product Department for technical compatibility.

STRUCTURAL SILICONE SEALANT APPLICATION PROCEDURES

CLEANING

WÜRTH INDUSTRIAL POWER DEGREASER and WÜRTH INDUSTRY CLEANER are solvent-based cleaning agents. For greasy or oily surfaces use INDUSTRIAL POWER DEGREASER which has a better oil/grease removal capability than WÜRTH INDUSTRY CLEANER. Application procedure is as follows:

1. Wet a dry and lint-free paper towel with cleaner and wipe the surface.
2. Then wipe-off the solvent with a clean paper towel before the cleaner dries.
3. Repeat this procedure until the surface is clean.
4. The required minimum drying time is 1 minute on non-absorbing substrates.

PRIMER APPLICATION PROCEDURE

Apply masking tape to the surfaces next to the joint to keep excess primer and sealant off areas where they are not intended. After cleaning the joint surfaces, the area next to joint shall be masked with WÜRTH Masking tape. **It shall be noted that if mask is not adhering properly then the cleaning of the joint was not sufficient and the procedure above needs to be repeated.**

The primer WÜRTH Silicone Primer ART 0892 170 is recommended to improve adhesion of WÜRTH SGSS to non-absorbent surfaces. Apply a thin coat of the silicone primer and allow it to flash off for approx. 30–45 minutes.

SEALANT APPLICATION PROCEDURE

1. Cleaning and priming of substrates.
2. Install spacer / backing strips.
3. The sealant is gunned into the sealant joint.

4. Make sure that SGSS fills the entire joint or cavity and contacts all surfaces to be bonded.

1-C & 2-C SGSS APPLICATION

1. Open the 190 liter steel drum with part A and remove protective plastic covers and place it under the follower plate.
2. Open the 20 liter plastic drum with part B, cut protective foil and place it under follower plat

2. After opening the pail containing the B-part (catalyst) cut the foil in a diameter of approx. 150 mm. Remove cut foil and any crust or oil from the surface. Place the pail under the follower plate.
3. Start operations carefully following the instructions of the equipment supplier.

SGSS are applied by either pneumatic or manual guns. The silicone must be applied evenly and free of air bubbles. The 1-component products form a skin after a certain time (approx. 10 minutes) which varies with ambient humidity and temperature. The joint bite for 1-C SGSS is limited to 15 mm in one curing step. After curing of the first part, additional bite length can be applied.
Tooling and smoothing of joints should be carried out as soon as possible after the adhesive application and not later than half of the skin time indicated in the relevant Product Data Sheet. (Within 5 minutes)
It must be ensured that the joint is completely filled and that the joint dimensions correspond to the calculated values.

Do not use liquid tooling aids such as water, soap or alcohols. These materials may interfere with sealant cure and adhesion and create aesthetic issues.
Remove the masking tape (if used) before the sealant skins over (within about 10 minutes of tooling).

SEALANT CURE REQUIREMENTS

Glazing units shall not be exposed to stress until strength has already developed. And as adhesion and stress build-up depend on the SGSS used, temperature, humidity and the substrates. Recommendations regarding the storage time are given in Table below.

Stage of Curing	Conditions	Time for 1-C SGSS *	Time for 2-C SGSS
Initial curing and adhesion build-up	Store units unloaded in horizontal position	7 days	24 hours
Strength-build up and increase of adhesion	Store units with dead load support vertically	14 days	2 days
Further strength and adhesion increase	Transportation of units vertically with support	20 Days	3 days
Ultimate strength and adhesion reached	Installation of Elements	28 days	> 4 days

* Time for 1-C SGSS may be verified with WÜRTH product department.

REPLACEMENT GLAZING DUE TO INDIVIDUAL UNIT BREAKAGE

FIELD ADHESION TEST

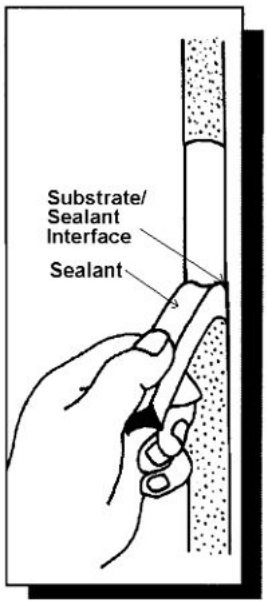


Figure 1

1. Cut through the sealant across the width of the sealant joint from one substrate to the other.
2. Make two cuts starting at the previous cut approximately 10 cm long, at both sides of the joint along the substrate/sealant interface.
3. Grasp the 10 cm piece of sealant firmly 3 cm from its bonded edge and slowly pull at a 90-degree angle
4. Note the type of failure that occurs upon full extension to failure and the degree of force required (little or much). If the substrate adhesion is acceptable, the sealant should tear cohesively within itself or elongate to an extension value beyond the sealant's movement capability before failing adhesively. Proceed to step 6.
5. If the adhesion is not acceptable, contact WÜRTH Gulf FZE Product Department.
6. Deglaze the area with a knife of piano wire depending on situation.
7. Cut away the SGSS, leaving a thin film 1 mm thick of silicone on the frame.
8. Clean the residual sealant with solvent. If new sealant is to be applied directly the cleaning with solvent shall not be performed since new sealant will adhere to cured sealant without primer.
9. The silicone may absorb some solvent. Allow this solvent to evaporate so the existing cured sealant is completely dry before applying additional sealant.
10. Clean the new panel and install in place. Provide temporary fasteners. Mask the joint.
11. Fill the joint with a bead of fresh structural sealant.
12. After the sealant has fully cured, check that full adhesion has been achieved and then remove the temporary fasteners.

QUALITY CONTROL

The below notes are essential quality assurance steps that need to be maintained all the time to assure the suitability of use of WÜRTH SGSS for Structural sealant applications.

1-C SGSS QUALITY CONTROL

SHELF LIFE AND STORAGE CONDITIONS

1-C SGSS must be stored at temperatures below 30°C.

SKIN-OVER TIME/ELASTOMERIC TEST

The skin overtime and elastomeric tests shall be performed once every 10 days to assure compliance of the SGSS to declared technical specifications.

1. Apply a bead of sealant into a (1 mm) film on a PE Sheet.
2. Touch the sealant with a tool every 5 minutes.
3. Record the time lapsed at which the sealant does not adhere to the tool. If it takes more than 2 hours for the skinning over stop using the product and contact WÜRTH GULF FZE product department
4. After 24 hours, peel the sealant from the PE Sheet. Check for curing and elasticity, if the sealant fails any of aforementioned properties contact WÜRTH GULF FZE product department.
5. Record the results

2-C SGSS QUALITY CONTROL

SHELF LIFE AND STORAGE CONDITIONS

1-C SGSS must be stored at temperatures below 27°C.

MATERIAL INSPECTION

Check the steel drum for any dents that may prevent the follower plate from operation.

Check for fluid separation and mix thoroughly for 3 minutes then place immediately under the follower plate and bleed off any air bubbles in accordance to pump manufacturer recommendations.

Do not leave exposed to air and close the lid immediately. If the pump is idle for more than 5 days recheck the catalyst.

APPLICATION TEMPERATURES:

Only use the product at temperatures not greater than 30 C.

MIX RATIO

The mixing ration of WÜRTH 2-C SGSS is between 8:1 and 10:1 by volume. To assure proper mixing the butterfly test illustrated below shall be performed each time the pump is operated. (ASTM C1401)

BUTTERFLY TEST

This test method determines the thoroughness of mixing of a multicomponent sealant.

- Apparatus

Paper–Heavy, plain white, bond paper 216 by 280 mm.

Sealant–Material to be tested as extruded from the dispensing apparatus.

- Procedure

Fold the piece of paper in half across the lengthwise dimension. Dispense a bead of sealant approximately 203-mm long onto the crease in the paper. Fold the paper, and pressing on the surface, smear the sealant bead to a thin film roughly equivalent to a semicircle in shape. Unfold the test specimen (paper) and inspect the formed sealant smear visually.

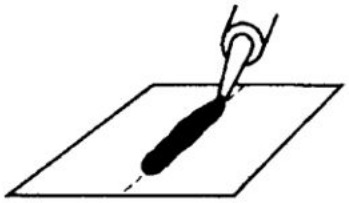
- Results

If the sealant smear is a uniform dark color, the sealant is mixed properly and ready for production use.

If the sealant is inconsistent in color or has streaks of different colors, the sealant is not mixed adequately and should not be used. Consult WÜRTH GULF FZE Product Department.

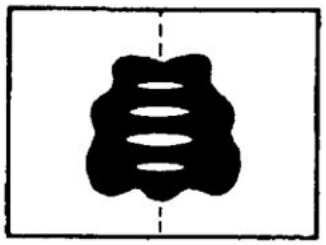
- Report

Retain and mark the test specimens, in opened configuration with the date, sealant lot numbers, and other pertinent information and file the information in a QC document for future reference.



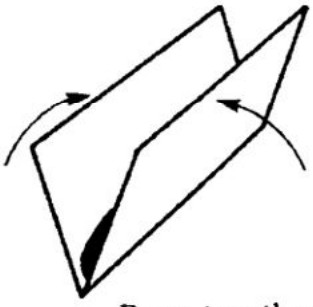
Apply sealant to creased white paper

(a)



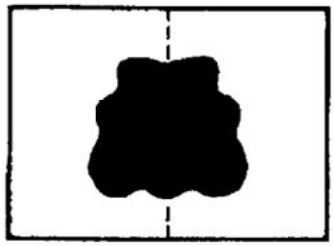
Poorly mixed sealant with white streaks

(c)



Press together

(b)



Well-mixed sealant

(d)

CURING TIME

This test needs to be performed on a daily basis to assure proper curing of deep section sealed with 2-C SGSS.

SNAP-TIME TEST

Scope

This test method determines whether the rate of cure of a mixed sealant sample is within the written specifications.

Apparatus

Paper Cup–Small paper cup of approximately 180-mL capacity.

Spatula–a wooden paint stirring stick, for example.

Sealant–Material to be tested as extruded from the dispensing apparatus.

Procedure

Fill the cup approximately 60% of its volume with sealant from the dispensing.

Insert the spatula vertically into the center of the cup.

Periodically attempt to remove the spatula from the sealant.

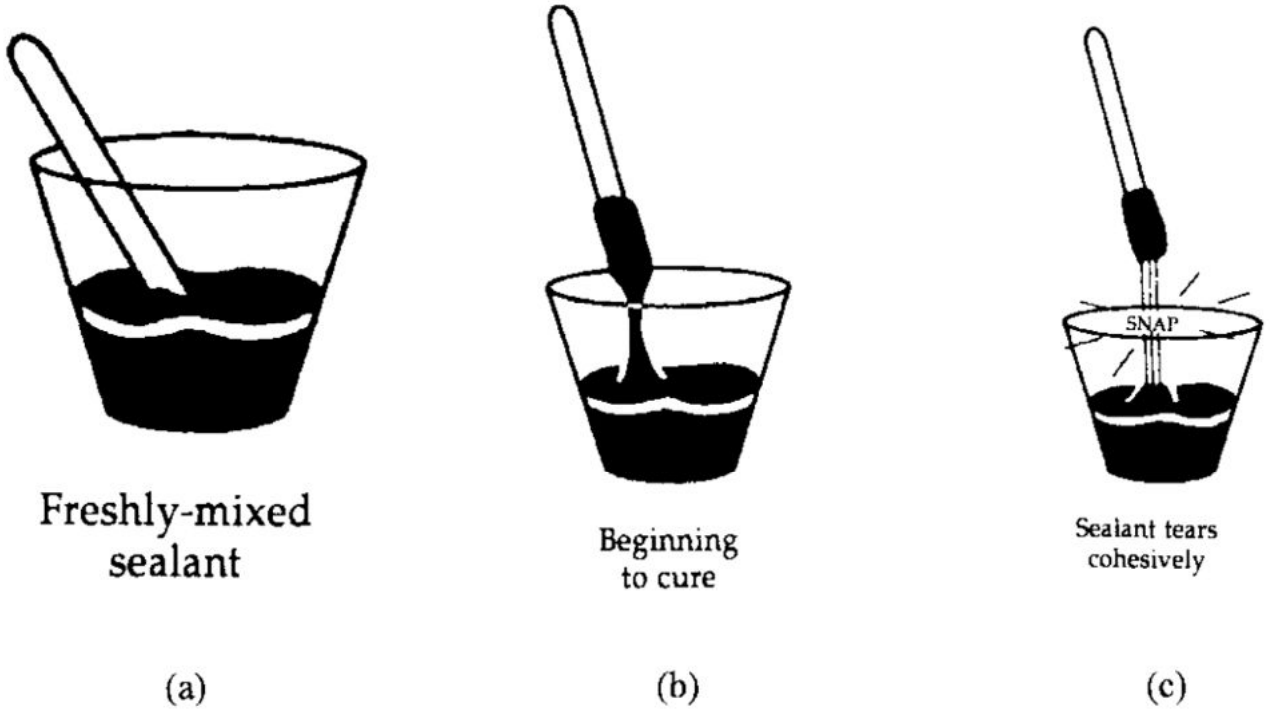
Results

If the sealant strings and does not tear within itself (cohesively) when the stick is pulled from the sealant, the sealant has not snapped. Continue periodic testing. The time, in minutes after filling the cup, at which the sealant does tear within itself, and does not string, is termed the snap time.

If the snap time is different from specified value for the particular sealant component mix ratio, contact WÜRTH GULF FZE Product Department.

Report

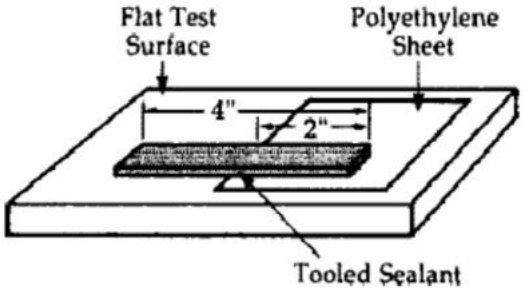
File the snap time test number, snap time in minutes, date, sealant lot numbers, and other pertinent information in a QC document for future reference.



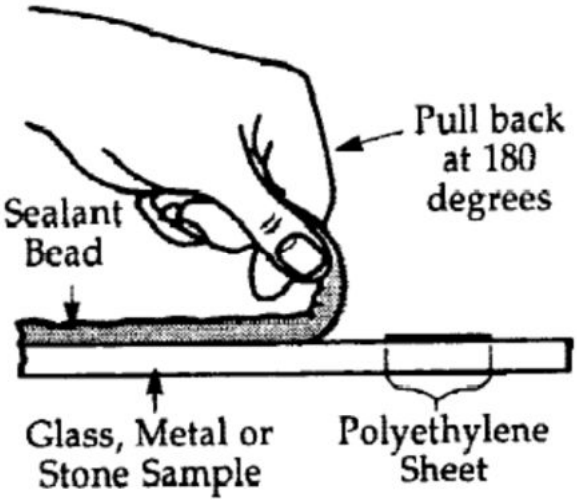
ADHESION TESTING

PEEL-IN-ADHESION TEST

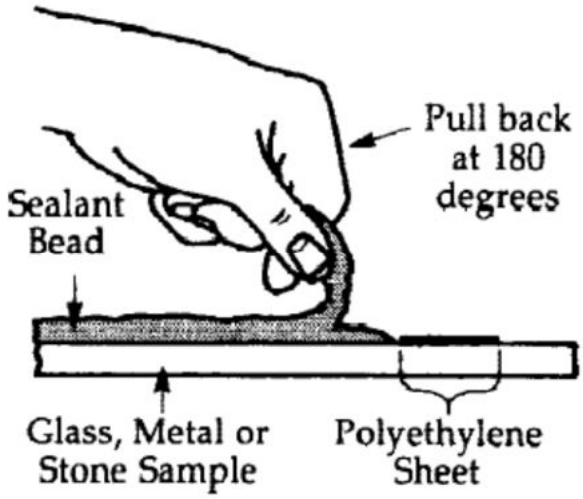
1. Clean and the surface following the project-specific recommendations.
2. Place a piece of bond breaker tape on the flat test surface.
3. Apply a bead of sealant and tool it to form a strip 200 mm X 30 mm with 50 mm covering the bond breaker.
4. After full curing of the silicone sealant, pull the sealant until failure and note the mode of failure as illustrated below



Adhesive Failure



Cohesive Failure



This test applies to all substrates and to be performed at a time similar to that when cladding parts are to be moved. 100% cohesion failure must occur in order to determine time required for moving cladding/curtain wall bonded parts.

DEGLAZING

Deglazing is performed to assure quality of SGSS adhesion on the bonded façade units. It shall be done after complete curing

of SGSS and prior to moving bonded parts to construction site.

DEGLAZING FREQUENCY

We recommend the following frequency for deglazing activities

1. 1 random unit of the first 15 panels
2. 1 random unit of the next 60 panels
3. 1 random panel of every 100 panels afterwards

DEGLAZING PROCEDURE

1. Cut the cured silicone joint on a plane parallel and as close as possible to the bonded glass reaching the spacer tape or block.
2. Cut along the whole perimeter of the glass then remove it exposing the SGSS bead
3. Cut 40 mm of the SGSS parallel to the substrate surface.
4. Pull the SGSS bead as clarified in the previous section of (Peel in Adhesion Testing)
5. Repeat steps 3 & 4 until all SGSS bead length applied on the frame is tested.
6. There should be no cohesive loss, air bubbles, or improperly mixed sealant (usually results in black/white stripes)
7. Check for bead dimensions tolerance and compare it with design drawings submitted to WÜRTH
8. Record results in QA/QC logs
9. Re-bond the frame as illustrated in application procedure in previous sections.

QUALITY ASSURANCE AND WARRANTY

INTRODUCTION

It is essential to maintain record the quality control procedures and tests illustrated in previous sections. This section explains how to qualify for WÜRTH Gulf Project Warranty and explains the differences between material performance warranty and Project Structural Application warranty. All warranties are only limited to original invoice cost of the SGSS. In addition to that; the suggested QC logs are included in the end of this section for ease of reference.

MATERIAL PERFORMANCE WARRANTY

WÜRTH SGSS are guaranteed for proper performance to the declared technical specifications at time of delivery. Should there be any issues arising during quality control testing the application shall be stopped and the issue shall be brought to the attention of WÜRTH Gulf FZE.

Proper documentation and daily inspection shall be performed by fabricator/contractor to assure that the quality match declared properties and use the documentation in the event of warranty claim.

PROJECT STRUCTURAL APPLICATION WARRANTY

Project structural warranty is dependent on full compliance to guidelines illustrated in this manual. Such guidelines include, but are not limited to:

- Application of SGSS prior to expiry
- The application procedure, joint dimensions, and SGSS specifications are in line with project prints, specifications and guidelines of this manual.
- The SGSS is used after obtaining compatibility and adhesion reports by WÜRTH.
- All testing required in this manual are performed and submitted with documentation available upon request of WÜRTH before or after the execution of the project.
- Successful completion of the QA/QC project checklist illustrated in the next section.

PROJECT CHECKLIST

The following activities must be completed for silicone structural glazing projects. Check off and/or date these items as they are completed. Some items may not apply to all projects. In that case, simply note "NA" (not applicable).

Activity (Activities to be performed in the sequence below)	Action By	Date
Submit Design Details	Fabricator / Contractor	
Submit maximum wind load and maximum glass size	Fabricator / Contractor	
Submit shop drawings approval by Consultant	Fabricator / Contractor	
Submit aluminum substrate for Adhesion Testing	Fabricator / Contractor	
Adhesion recommendation report for Aluminum Substrate	WÜRTH Gulf FZE	
Submit glass for Adhesion Testing	Fabricator / Contractor	
Adhesion recommendation report for glass	WÜRTH Gulf FZE	
Submit site representative glazing spacer	Fabricator / Contractor	
compatibility report for glazing spacer	WÜRTH Gulf FZE	
Submit site representative setting block	Fabricator / Contractor	
compatibility report for setting block	WÜRTH Gulf FZE	
Submit site representative gaskets in contact with SGSS	Fabricator / Contractor	
compatibility report for gaskets in contact with SGSS	WÜRTH Gulf FZE	
Conduct and Record daily product quality testing and document on log sheet(s)	Fabricator / Contractor	
Conduct and Record daily adhesion testing and document on log sheet(s)	Fabricator / Contractor	
Deglaze in accordance to schedule	Fabricator / Contractor	

PRODUCT QUALITY CONTROL LOG – 1-C SGSS

Project ID:						
Location/Elevation/Unit ID:						
Article No.						
Date	Time	Tester Initials	Sealant Batch Number	Tack-Free Time (Minutes)	Cured After 24 Hours (Y/N)	Elastomeric (Y/N)

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

4-Schedule of the materials



Schedule of Items for approval and area of application :

Art. No	Description	Area of application
0890 538300 0890538600	Structure silicon	one component, neutral curing silicone structural sealant designed for structural bonding and sealing of glass, stone, aluminum curtain wall, glass daylighting roof and metal structure engineering.

Product Department
Wurth Gulf FZE



WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

5-TECHNICAL DATASHEET



WÜRTH 1-C SG SILICONE SEALANT



Art.No. 0890 538300 P.Qty. 1
Contents: 300ml

Technical Data			
Properties		**Result**	**Test method**
Slump, mm		≤3 NS	ASTM C 639
Extrudability, s		≤10	ASTM C 1183
Tack-free time, min		40 min	ASTM C 679
Hardness (Shore)		20 - 60 NT	ASTM C 661
Mass loss by heat, %		≤5	ASTM C 1246
Tensile	Strength, MPa	≥0.87	ASTM C 1135
Joint Movement Capability,%		±50	ASTM C 719
Tear Strength, kN/m		≥5	ASTM D 0624
Elongation at break,%		≥140	ISO 8339
Cure time, h		48 hrs	-
Staining		No	ASTM C 1248
Elastic recovery		≥80%	ASTM D 6049
Service temp		-40 – 200°C	-
Specific gravity		1.4 ± 0.1	-

Note
For application details and warranty requirements please refer to würth Gulf structural glazing technical manual

Characteristics
ASTM C920: Single component NS, Class 50, NT, M, G, A
Single-component, neutral curing. high modulus, high elasticity.
- Temperature resistant, flexible, non-corrosive and pollution-free sealant body after cure.
- Excellent unprimed adhesion to most common building substrates.

Main Function
For structural sealing of glass curtain walls, stone (marble, granite) curtain walls, aluminum board curtain walls and other metal structural engineering.
- Fixing and glazing of wind pressure resistant glass.
- For structural sealing between glass and metal component in workshop curtain walls.
Other architectural and industrial sealing.

Storage
- 12 months under dry condition, below 30°C

Color
Black.

Package
- 300 ml cartridge
590 ml sausage

Shelf life
Store the product in a cool and dry place.
The shelf life is 12 months

Caution
Keep out of reach of children
- Avoid contact with skin.
- Use only in well ventilated areas
Don't use in aquariums

Health and safety
For information and advice on the safe handing, storage and disposal of chemical products, users shall refer to the most recent materials safety data sheet containing, physical, ecological, and toxicological and other safety related data.

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

6-MSDS



SAFETY DATA SHEET

Wurth 1-C SG Silicone

Revision Date 01.01.2017 MSDS No.: 70713-67-8
Supercedes: 31.12.2017

SECTION 1. CHEMICAL PRODUCT / COMPANY INFORMATION

Commercial Product Name : Würth 1-C SG Silicone

Details of the supplier of the safety data sheet

Company : Wurth Gulf Fze
POBox 17036
Dubai
Utd. Arab Emir.
E-mail address: wurthgulf@emirates.net.ae

Telephone : +9714 8834229
Telefax : +9714 8834303

1.1 Emergency telephone number

Emergency telephone Advisory office in case of poisoning
+9714 8834229

Telephone number of the company in case of emergencies
+97150 5646023

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS NO	WT%
a.w- dihydroxy polydimethylsiloxane	63148-62-9	49 %
Activity of nano calcium carbonate	471-34-1	42 %
Fumed Silica	14464-46-1	5 %
Neutral crosslinking agent	64265-57-2	4 %

SECTION 3. HAZARDS IDENTIFICATION

Health Effects

Acute – Swallowed : May cause irritation of the gastrointestinal system. Symptoms may include nausea, vomiting and diarrhea.

Acute – Eye : Irritating to eyes. Symptoms may include redness, excessive tearing, stinging and swelling.

Acute – Skin : Irritating to skin. Symptoms may include redness and itchiness. Repeated or prolonged skin contact may lead to dermatitis. May cause sensitization by skin contact.

Acute – Inhaled : May cause irritation to respiratory system. Symptoms may include headache, nausea and dizziness.

Chronic Hazards: Possible risk of irreversible effects. Male rodents exposed to MEKO vapor throughout their lifetime developed liver cancer. Additional testing is planned by the MEKO supplier to determine any relevance to humans. Until more data is known, exposure

levels should be maintained as low as achievable. The above listed potential effects of overexposure are based on actual data, the results of studies performed upon similar compositions, component data, and/or expert review of the products.

SECTION 4. FIRST AID MEASURES

First Aid - Eye Contact: In case of contact, immediately flush eyes with large quantities of water for at least 15 minutes until irritation subsides. Get medical attention immediately.

First Aid - Skin Contact: Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical aid if symptoms persist. Remove and wash contaminated clothing.

First Aid - Inhalation: If inhaled, remove to fresh air. If breathing is difficult, leave the area to obtain fresh air. If continued breathing difficulty is experienced, get medical attention immediately.

First Aid - Ingestion: If swallowed, DO NOT INDUCE VOMITING. Get medical attention immediately. If ingested, drink 2 glasses of water. Immediately see a physician. Never give anything by mouth to an unconscious person.

Note to Physician: No Information.

SECTION 5. FIRE FIGHTING MEASURES

Fire/Explos. Hazard : Product is non-flammable.

Hazardous Combustion : Combustion products include oxides of metal, oxides of carbon, silicon dioxide, nitrogen oxides and formaldehyde.

Hazardous Decomposition or Byproducts : Oxides of metal, oxides of carbon, silicon dioxide, nitrogen oxides and formaldehyde.

Fire Fighting Precautions : Fire fighters should wear full protective clothing and self-contained breathing apparatus.

Extinguishing Media : Use dry chemical, carbon dioxide, foam or water spray to extinguish fire. Use water spray to cool storage tanks, pipelines and fire-exposed surfaces.

Hazchem Code : None Allocated

SECTION 6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken If Material Is Released Or Spilled: Wear appropriate personal protective equipment and clothing to minimize exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unnecessary personnel. If possible contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into a suitable labeled container for subsequent disposal. Dispose of waste according to the Environmental Protection Authority (EPA), federal, state and local regulations. If large quantities of this material enter the waterways contact the EPA, or your local Waste Management Authority.

Disposal Considerations: Dispose of waste according to Environmental Protection Authority, federal, state and local regulations.

SECTION 7. HANDLING AND STORAGE

Handling: Open containers cautiously as contents may be under pressure. Use only in a well ventilated area. DO NOT store or use in confined spaces. Do not enter these areas without respiratory protection or until the atmosphere has been checked. Keep tank covered and containers sealed when not in use. Build up of mists or vapors in the atmosphere must be prevented. Avoid inhalation of vapor and mists. Do not use near welding or other ignition sources and avoid sparks. Do not smoke. When dealing with large quantities, repeated or prolonged exposure without protection should be prevented in order to lessen the possibility of disorders. It is essential that all who come into contact with this material, maintain high standards of personal hygiene i.e. Washing hands prior to eating, drinking, smoking or using toilet facilities.

Storage: Store in a cool, dry, well ventilated area away from sources of ignition, oxidizing agents, foodstuffs, clothing and out of direct sunlight. Protect from moisture. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Have appropriate fire extinguishers available in and near the storage area. Take precautions against static electricity discharges. Use proper grounding procedures. Do NOT pressurize, cut, heat or weld containers as they may contain hazardous residues.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Precautionary Measures: No Information.

Exposure Limits: No value assigned for this specific material by the Australian National Occupational Health and Safety Commission (NOHSC) or the Occupational Safety and Health Service (OSH) of the New Zealand Department of Labor. As with all chemicals, exposure should be kept to the lowest possible levels.

Engineering Controls: Provide sufficient ventilation. Where vapors or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a local exhaust ventilation system is required.

Respiratory Protection: In case of insufficient ventilation, wear suitable respiratory equipment. A NIOSH approved air purifying respirator with an organic vapor cartridge or canister may be necessary under certain circumstances where airborne concentrations are expected to exceed exposure limits. A respiratory protection program that meets the OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Eye Protection: Safety glasses with side shields or face shield as appropriate recommended. Final choice of appropriate eye/face protection will vary according to individual circumstances i.e. methods of handling or engineering controls and according to risk assessments undertaken.

Glove Type: Impervious gloves recommended. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken.

Clothing: Wear appropriate clothing including chemical resistant apron where clothing is likely to be contaminated. It is advisable that a local supplier of personal protective clothing is consulted regarding the choice of material.

Other Information: No biological limit allocated.

Hygienic Practices: Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

SAFETY DATA SHEET

Wurth 1-C SG Silicone

Revision Date 01.01.2017 MSDS No.: 70713-67-8
Supercedes: 31.12.2017

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Black paste

Boiling Point: Not available

Flash Point: Not available

Flamm. Limit UEL: Not available

Autoignition Temp.: Not available

PH: Not available

Physical State: Paste

Melting Point: Not available

Specific Gravity: 1.35

Flamm. Limit LEL: Not available

Solubility in Water: Not available

Vapor Density: Not available

Odor: Paste

SECTION 10. STABILITY AND REACTIVITY

Conditions to Avoid: Extremes of temperature and direct sunlight.
Hazardous Reaction : Hazardous reaction with oxidizing agents.
Hazardous Decomposition Products: Oxides of metal, oxides of carbon, silicon dioxide, nitrogen oxides and formaldehyde.
Stability: Stable under normal conditions of storage and handling.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicology: No toxicity data is available for this product.
Reproductive Toxicity: Octamethylcyclotetrasiloxane.
Mutagenicity: None known.
Carcinogenicity: None known.
Risk Statement:
R43 May cause sensitization by skin contact.
R40(3) Possible risk of irreversible effects.
R36/38 Irritating to eyes and skin.
Safety Statement:
S45 In case of accident or if you feel unwell seeks medical advice immediately
S24/25 Avoid contact with skin and eyes.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
Bioaccumulation: No data available for this specific material.
Ecotoxicity : No data available for this specific material.
Persistence / Degradability : No data available for this specific material.
Mobility : No data available for this specific material**.**

SECTION 12. ECOLOGICAL INFORMATION

Ecological Information: Do not allow product to enter drains, waterways or sewers.

SECTION 13. DISPOSAL INFORMATION

Disposal Information: Dispose of material in accordance with all federal, state and local regulations. State and Local regulations/restrictions is complex and may differ from Federal regulations. Responsibility for proper waste disposal is with the owner of the waste.

SECTION 14. TRANSPORT INFORMATION

Sea Transport (IMDG): Not subject to IMDG code.
Air Transport (IATA): Not subject to IATA regulations.
Special Requirements and Additional Information: None.

SECTION 15. REGULATORY INFORMATION

Hazard Category: Harmful, Irritant.
IECSC: All ingredients listed or exempt.
KECL: All ingredients listed, exempt or notified.
MITI: All components are listed on ENCS or its exempt rule.
TSCA (USA): All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.
AICS (Australia): All ingredients listed or exempt.
DSL (Canada): All chemical substances in this material are included on or exempted from the DSL.
PICCS (Philippines): All ingredients listed or exempt.
EINECS/ELINCS (EC): EINECS: All ingredients listed or exempt.

SECTION 16. OTHER INFORMATION

IMPORTANT ADVICE: This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including its use in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact Würth Gulf FZE. Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

SAFETY DATA SHEET

Double Component Structural Sealant

Revision Date 01.01.2017 MSDS No.: 70713-67-8
Supercedes: 31.12.2017

SECTION 1. CHEMICAL PRODUCT / COMPANY INFORMATION

Commercial Product Name : Würth 2-C SG Silicone

Details of the supplier of the safety data sheet

Company : Wurth Gulf Fze
POBox 17036
Dubai
Utd. Arab Emir.
E-mail address: wurthgulf@emirates.net.ae

Telephone : +9714 8834229
Telefax : +9714 8834303

1.1 Emergency telephone number

Emergency telephone Advisory office in case of poisoning
+9714 8834229

Telephone number of the company in case of emergencies
+97150 5646023

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

A Part Chemical Name	CAS NO	WT%
a.w- dihydroxy polydimethylsiloxane	63148-62-9	60 – 65 %
Silicone Oil	9006-65-9	5 %
Calcium Carbonate	1317-65-3	30 – 35 %

B Part Chemical Name	CAS NO	WT%
a.w- dihydroxy polydimethylsiloxane	63148-62-9	25 – 30 %
Tetra-n-propoxysilane	1067-53-4	20 – 25 %
Fumed Silica	14464-46-1	20 – 25 %

SECTION 3. HAZARDS IDENTIFICATION

Health Effects

Acute – Swallowed : May cause irritation of the gastrointestinal system. Symptoms may include nausea, vomiting and diarrhea.

Acute – Eye : Irritating to eyes. Symptoms may include redness, excessive tearing, stinging and swelling.

Acute – Skin : Irritating to skin. Symptoms may include redness and itchiness. Repeated or prolonged skin contact may lead to dermatitis. May cause sensitization by skin contact.

Acute – Inhaled : May cause irritation to respiratory system. Symptoms may include headache, nausea and dizziness.

Chronic Hazards: Possible risk of irreversible effects. Male rodents exposed to MEKO vapor throughout their lifetime developed liver cancer. Additional testing is planned by the MEKO supplier to determine any relevance to humans. Until more data is known, exposure levels should be maintained as low as achievable. The above listed potential effects of overexposure are based on actual data, the results of studies performed upon similar compositions, component data, and/or expert review of the products.

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First Aid - Inhalation: If inhaled, remove to fresh air. If breathing is difficult, leave the area to obtain fresh air. If continued breathing difficulty is experienced, get medical attention immediately.

First Aid - Ingestion: If swallowed, DO NOT INDUCE VOMITING. Get medical attention immediately. If ingested, drink 2 glasses of water. Immediately see a physician. Never give anything by mouth to an unconscious person.

Note to Physician: No Information.

SECTION 5. FIRE FIGHTING MEASURES

Fire/Explos. Hazard : Product is non-flammable.

Hazardous Combustion : Combustion products include oxides of metal, oxides of carbon, silicon dioxide, nitrogen oxides and formaldehyde.

Hazardous Decomposition or Byproducts : Oxides of metal, oxides of carbon, silicon dioxide, nitrogen oxides and formaldehyde.

Fire Fighting Precautions : Fire fighters should wear full protective clothing and self-contained breathing apparatus.

Extinguishing Media : Use dry chemical, carbon dioxide, foam or water spray to extinguish fire. Use water spray to cool storage tanks, pipelines and fire-exposed surfaces.

Hazchem Code : None Allocated

SECTION 6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken If Material Is Released Or Spilled: Wear appropriate personal protective equipment and clothing to minimize exposure. Extinguish or remove all sources of ignition and stop leak if safe to do so. Increase ventilation. Evacuate all unnecessary personnel. If possible contain the spill. Place inert absorbent, non-combustible material onto spillage. Use clean non-sparking tools to collect the material and place into a suitable labeled container for subsequent disposal. Dispose of waste according to the Environmental Protection Authority (EPA), federal, state and local regulations. If large quantities of this material enter the waterways contact the EPA, or your local Waste Management Authority.

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Storage: Store in a cool, dry, well ventilated area away from sources of ignition, oxidizing agents, foodstuffs, clothing and out of direct sunlight. Protect from moisture. Keep containers closed when not in use and securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Have appropriate fire extinguishers available in and near the storage area. Take precautions against static electricity discharges. Use proper grounding procedures. Do NOT pressurize, cut, heat or weld containers as they may contain hazardous residues.

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Precautionary Measures: No Information.

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Clothing: Wear appropriate clothing including chemical resistant apron where clothing is likely to be contaminated. It is advisable that a local supplier of personal protective clothing is consulted regarding the choice of material.

Other Information: No biological limit allocated.

Hygienic Practices: Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday**.**

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Various **Melting Point:** Not available

Boiling Point: Not available

Flash Point: Not available

Flamm. Limit LEL: Not available

Flamm. Limit UEL: Not available

Solubility in Water: Not available

Autoignition Temp.: Not available

Vapor Density: Not available

PH: Not available

Odor: Acetic acid odor

Physical State: Paste

SECTION 10. STABILITY AND REACTIVITY

Conditions to Avoid: Extremes of temperature and direct sunlight.
Hazardous Reaction : Hazardous reaction with oxidizing agents.
Hazardous Decomposition Products: Oxides of metal, oxides of carbon, silicon dioxide, nitrogen oxides and formaldehyde.
Stability: Stable under normal conditions of storage and handling.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicology: No toxicity data is available for this product.
Reproductive Toxicity: Octamethylcyclotetrasiloxane.
Mutagenicity: None known.
Carcinogenicity: None known.
Risk Statement:
R43 May cause sensitization by skin contact.
R40(3) Possible risk of irreversible effects.
R36/38 Irritating to eyes and skin.
Safety Statement:
S45 In case of accident or if you feel unwell seeks medical advice immediately
S24/25 Avoid contact with skin and eyes.
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Bioaccumulation: No data available for this specific material.
Ecotoxicity : No data available for this specific material.
Persistence / Degradability : No data available for this specific material.
Mobility : No data available for this specific material**.**

SECTION 12. ECOLOGICAL INFORMATION

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Special Requirements and Additional Information: None.

SECTION 15. REGULATORY INFORMATION

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IECSC: All ingredients listed or exempt.
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TSCA (USA): All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.
AICS (Australia): All ingredients listed or exempt.
DSL (Canada): All chemical substances in this material are included on or exempted from the DSL.
PICCS (Philippines): All ingredients listed or exempt.
EINECS/ELINCS (EC): EINECS: All ingredients listed or exempt.

SECTION 16. OTHER INFORMATION

IMPORTANT ADVICE: This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including its use in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact Würth Gulf FZE. Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

7- ISO CERTIFICATE



ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Management Service

CERTIFICATE

Certificate Registration No.: **12 100 23791 TMS** / Order No.: **70020920**

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that the organization

WÜRTH

Adolf Würth GmbH & Co. KG

Reinhold-Würth-Str. 12-17 • 74653 Künzelsau
Germany

for the scope

Development and distribution of fasteners, hand tools and storage systems. Distribution of products (standard parts, special parts, systems) for industrial safety, construction, workshops, fire protection technology, chemical-technical applications, anchor technology, direct assembly, electrical installations, material processing, installation, measuring technology, soldering and welding technology, as well as of products such as electrical and pneumatic tools and machines, small and replacement parts for automotive vehicles, advertising media. Maintenance of electric power tools, pin driver technology and pneumatic tools as well as testing of fall arrest systems, length measuring tools (laser technology) and tools for torque measurement and vehicle conversion or installation of storage systems including load securing in vehicles as well

including the sites see enclosure

has established and applies a Quality Management System.

An audit was performed and has furnished proof
that the requirements according to

DIN EN ISO 9001:2015

are fulfilled.

The certificate is valid from **2024-04-10** until **2027-04-09**.

Fred Wenke
Head of Certification Body
Munich, 2024-03-13

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

DAkkS Deutsche Akkreditierungsstelle D-ZM-14143-01-00

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Management Service

ENCLOSURE OF CERTIFICATE

Certificate Registration No.: **12 100 23791 TMS** / Order No.: **70020920**

certificate holder:

Adolf Würth GmbH & Co. KG
Reinhold-Würth-Str. 12-17
74653 Künzelsau
Germany

at the sites	**scope**
Adolf Würth GmbH & Co. KG Reinhold-Würth-Str. 12-17 74653 Künzelsau Germany	Development and distribution of fasteners, hand tools and storage systems. Distribution of products (standard parts, special parts, systems) for industrial safety, construction, workshops, fire protection technology, chemical-technical applications, anchor technology, direct assembly, electrical installations, material processing, installation, measuring technology, soldering and welding technology, as well as of products such as electrical and pneumatic tools and machines, small and replacement parts for automotive vehicles, advertising media. Maintenance of electric power tools, pin driver technology and pneumatic tools as well as testing of fall arrest systems, length measuring tools (laser technology) and tools for torque measurement.
Adolf Würth GmbH & Co. KG **Fahrzeugeinrichtungen** Am Seebach 2 74182 Obersulm-Willsbach Germany	Vehicle conversion or installation of storage systems including load securing in vehicles.

Fred Wenke
Head of Certification Body
Munich, 2024-03-13

MS/01-07/2023

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD Management Service

CERTIFICATE

Certificate Registration No.: **12 104 23791 TMS** / Order No.: **70020920**

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that the organization

WÜRTH

Adolf Würth GmbH & Co. KG

Reinhold-Würth-Str. 12-17 • 74653 Künzelsau
Germany

for the scope

Development and distribution of fasteners, hand tools and storage systems. Distribution of products (standard parts, special parts, systems) for industrial safety, construction, workshops, fire protection technology, chemical-technical applications, anchor technology, direct assembly, electrical installations, material processing, installation, measuring technology, soldering and welding technology, as well as of products such as electrical and pneumatic tools and machines, small and replacement parts for automotive vehicles, advertising media. Maintenance of electric power tools, pin driver technology and pneumatic tools as well as testing of fall arrest systems, length measuring tools (laser technology) and tools for torque measurement

has established and applies an Environmental Management System.

An audit was performed and has furnished proof
that the requirements according to

DIN EN ISO 14001:2015

are fulfilled.

The certificate is valid from **2024-05-24** until **2027-05-23**.

Fred Wenke
Head of Certification Body
Munich, 2024-03-13

IAF MLA DAkkS Deutsche Akkreditierungsstelle D-ZM-14143-01-00

MS/01-07/2023

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that

Adolf Würth GmbH & Co. KG

Reinhold-Würth-Str. 12-17 • 74653 Künzelsau
Germany

has established and applies
an Energy Management System for

Development and distribution of fasteners, hand tools and storage systems. Distribution of products (standard parts, special parts, systems) for industrial safety, construction, workshops, fire protection technology, chemical-technical applications, anchor technology, direct assembly, electrical installations, material processing, installation, measuring technology, soldering and welding technology, as well as of products such as electrical and pneumatic tools and machines, small and replacement parts for automotive vehicles, advertising media. Installation of storage systems including load securing in automotive vehicles. Maintenance of electric power tools, pin driver technology and pneumatic tools as well as testing of fall arrest systems, length measuring tools (laser technology) and tools for torque measurement.

An audit was performed, Order No. **70020920**.

Proof has been furnished that the requirements
according to

ISO 50001:2018

are fulfilled.

The certificate is valid in conjunction
with the main certificate from **2022-10-04** until **2025-10-03**.

Certificate Registration No.: **12 340 23791/01 TMS**.

Head of Certification Body
Munich, 2022-10-05

DAkkS Deutsche Akkreditierungsstelle D-ZM-14143-01-00

MS/01-01/2019

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

8- TEST REPORTS



مختبرات ويمبي ش.ذ.م.م.
WIMPEY LABORATORIES L.L.C.

IAS ACCREDITED Testing Laboratory TL-564

TEST REPORT ON COMPATIBILITY

Client	Gutmann P V B Plastic Sheets Manufacturing LLC		
Sample Description	Wurth I-C SG Silicon Sealant	Lab Report No.	WD-R-231114-0969
Source	Gutmann P V B Plastic Sheets Manufacturing LLC	Request No.	WD- -231114-0249
Test Method	ASTM C1087-23	Sample No.	WD-S-231114-0932
Substrate Used	Glass	Date Received	14/11/2023
UVA Light	UVA 340 lamps	Casting Date	06/12/2023
Accessory	Weather Sealant and glass plate.	Curing Time	7 days
		UV Exposure Period	13/12/2023-03/01/2024
Test Temperature	48 C	Test completion date	03/01/2024
Relative Humidity	50%	Report Date	03/01/2024
Duration of UV Exposure	21 days (500 Hours)	Tested By	RB

Test Result

Sample Reference		**Without Accessories**			
Sample Number		**1**	**2**		
Test	**Sealant**	**Result**			
Color Change	Reference Sealant	0	0	0	0
	Test Sealant	0	0	0	0
% of Cohesive Failure of Sealant on Glass Substrate	Reference Sealant	%CF	%CF	%CF	%CF
		100	100	100	100
	Test Sealant	%CF	%CF	%CF	%CF
		100	100	100	100
Observation	**No incompatibility was observed between the Wurth I-C SG Silicon Sealant and Glass**				

Color Change

No.	Color change	Change description
0	None	No change from the control
1	Very, very slight	Change so slight that you are not sure it is real
2	Very slight	Faint color – generally yellow
3	Slight	Light color – commonly yellow, orange, pink and brown.
4	Severe	Distinct color – possibly red and purple in addition to yellow, orange, pink or brown.
5	Very severe	Dark Color – may be black as well as other Colors mentioned.

CF: Cohesion Failure.

Remarks: No adhesion failure observed, the tested Wurth I-C SG Silicon Sealant is compatible with the Glass.

Signed for and on behalf of Wimpey Laboratories L.L.C

S.Sarath Kumar
Head of Department

Test results relate only to the samples tested
This report shall not be reproduced except in full, without the written approval of the laboratory.

-End of text-

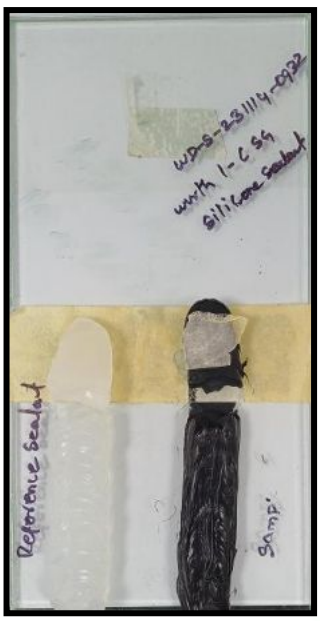
Lab Report No.: WD-R-2 111 -
Sample No.: WD-S-2 111 - 2

ANNE A

TEST PHOTOS



UV Weathering chamber





Specimen photo (Initial)

Specimen photo after test

WIMPEY LABORATORIES L.L.C.
P.O.BOX: 123279, DUBAI, U.A.E.

Certificate No.: 20183023496
Date: February 1, 2018

Dubai,

Certificate of Confirmation of hazardous material elimination

We as Würth Gulf and under our sole responsibility herewith confirm that our below mentioned product according to the elimination of hazardous material complies as follows:

Art. #	Description	Asbestos Level	Chromated Copper Arsenate (CCA)
0890 38300	Würth Structural sealant-black-300ML	Free Of Asbestos	Free of CCA

We trust to have been of service with this confirmation and remain,

With kindest regards,

WURTH P.O.Box: 17036 Jebel Ali Dubai - U.A.E. WURTH GULF FZE

Tomer Assaf
Product Department
Würth Gulf FZE

Certificate No.: 20183023495
Date: February 1, 2018

WÜRTH

Dubai,

Declaration of LEED compliance

According to NC-v2.2 EQc4.1: Low Emitting Materials Adhesives and Sealants

TO WHOM IT MAY CONCERN

We herewith declare under our sole responsibility that Würth Structural Silicone is categorized as an architectural adhesive with following limits and properties

Art. #	Description	VOC Limit acc.to LEED	Actual VOC Level	Compliance
0890 538300	Würth Structural sealant-black-300ML	250 G/L	15.2 G/L	This Product fulfils the requirements of LEED for adhesives and sealants

We trust to have been of service with this declaration and remain
With kindest regards,

WÜRTH P.O.Box: 17036 Jebel Ali Dubai - U.A.E. WÜRTH GULF FZE

Tamer Assaf
Product Department
Würth Gulf FZE

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

9- COUNTRY OF ORIGIN



Date : July 07,2024

Country of Origin

We herewith declare under our sole responsibility that:

Item Number	Item Description	Country of Origin
0890 538300	Structure silicon 300ml - Black	China
0890 538600	Structure silicon 600ml - Black	China

is manufactured exclusively in our factories in China under supervision of our Wurth Quality Control laboratories.

We trust to have been of service with this declaration and remain

With kindest regards,

Product Department



Wurth Gulf FZE-Plot # S61303, Jebel Ali South 6 ,Dubai ,U.A.E - P.O.Box:17036
T: +9714 8809991, 04 8834229(old), F: +971 4 8809255, 04 8834303(old), E: wurthglf@emirates.net.ae - www.wurth.ae

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

10- APPROVALS



MATERIAL SUBMITTAL FORM

Part A Project & Record Information:			
Project Name	Al Falah Police Station (Sector No. 1F, Plot No. P1)	MS.Ref.No	53560-00SIT-GE-AGC-CIV-MAT-0170-01
Client	Abu Dhabi Police	Rev.No	01
Employer	Abu Dhabi General Services Company (Musanada)	Drawing Ref.	
PMC	N/A	BOQ Ref. if any	
Engineer	Al Suweidi Engineering Consultants	Approx. Qty	
Contractor	Al Eslah General Contracting Est	Submission Date	18-May-19

Part B Material Submittal Discipline			
Related Discipline	[x] Civil Material	[ ] Architectural Material	[ ] Electrical Material
	[ ] Mechanical Material	[ ] Others (Specify)	

Part C: Material Details		
Spec's. Ref.		Sec. 08 44 00
Specified Materia		Glazed Curtain Walls
Proposed Material		GLAZING SEALANT
Manufacturer's	Name	Wurth Gulf
	Address	UAE
Supplier's	Name	Wurth Gulf
	Address	UAE
Estidama Approval		
Justification of Alternative Material		

Attachment Checklist			
1	Compliance checklist	X
2	Copy of the related specs	X
3	Copy of the related drawings	X
4	Copy of the related BOQ	X
5	Copy of the related Standards	X
6	Material Technical Data Sheet	X
7	Previous test results	
8	Warranty	
9	Musanada Previous Approvals	X
10	Other Relevant Approvals	X
11	Licenses of Manufacturer	X
12	ISO 9001 Certificate	X
13	Sample with Sample Tag	X
14	Estidama Compliance Approval	X
15	Others (Company Profile)	X

Part C: Contractors Review	M.E	HSE	Sr. QA/QC	Project Manager
Name		Joey Reales		Tarif Jigjki
Signature				
Date		ALFALAH - 18-May-19		18-May-19

We do certify that the material submitted herewith has been reviewed in details and in accordance with the Contract Documents except as otherwise stated here above.

Part D. Engineers Review / Approval

Refer to attached comments

29/5/2019

Al Eslah Gen. Cont. Est.

30 MAY 2019

RECEIVED

APPROVED AS NOTED

Employer/ Engineer Approval				
	[ ]	A - Approved	[ ]	C - Revised and resubmit
	[✓]	B - Approved with comments	[ ]	D - Rejected

Note(1): Employer's/ Engineer's approval is for conformance with information given and design concept expressed in Contract Documents. Approval does not authorize changes to Contract Documents. Employer's/ Engineer's approval does not relieve the Contractor from his contractual obligation to ensure conformance to all Contract Documents. Any deviations to the Contract Documents found subsequent to Employer's/ Engineer's approval are to be corrected by the Contractor at no extra Cost/Time to the Employer.

	Engineer's ME / SE	Engineer's RE	For Musanada
Name		Ehab Musa	Venkidasamy Subburam (Raja)
Signature			
Date		29.05.2019	

Estidama Compliance Form

Date:	**20/04/2019**	**Document Ref:**	OXY-EGC-CS-MS-164	**Rev:**	2
Project:	AL FALAH POLICE STATION SECTOR 1 PLOT 1P	**Related Material Ref:**	53560-00SIT-GE-AGC-CIV-MAT-0170	**Rev:**	1

Submittal Title:	**SEALANT**

Item No.	Description	Remarks
1	Glazing Sealant	Neutral Silicon Transparent (VOC = 49 g/L) Structural Silicon (VOC = 15.2 g/L) Weather Sealant (VOC = 55 g/L)

Sub contractor / Supplier / Manufacturer Name:	Wurth Gulf FZE
Independent Commissioning Agent (ICA) Review Required?	☐ Yes ☑ No

ESTIDAMA Consultant Review Comments

Material Complies with Estidama Requirements.Third Party Test Certificate confirms VOC Content of Glazing Sealant as per Estidama Requirements.

Contractor to provide Material Delivery Notes once material arrives on site.

☐ **Approved** ☑ **Approved As Noted** ☐ **Revise & Resubmit** ☐ **Not Approved** ☐ **Not Related To ESTIDAMA**

Name: Said Qallud C-PQP	**Signature:**	**Date: 20/04/2019**

OXYGEN CONSULTANCY

WÜRTH GULF SUBMITTAL

STRUCTURAL SILICONE

11- DRAFT WARRANTY



Date: September 12, 2023

DRAFT WARRANTY CERTIFICATE

PRODUCT: WÜRTH 1-C SG SILICONE SEALANT - 0890 538300

Description: WEATHER SEALANT Structure SEALANT

Manufacturer: Wurth Gulf FZE

Supplier: Wurth Gulf FZE

Draft of Warranty: Effective from the issue date of final taking-over certificate

Duration of Warranty: 10 Years

Guarantee / Warranty "Coverage and Description":

We as Würth Gulf confirm a 10-year warranty on material specifications and against material defects for our product mentioned above,.This warranty is conditional to application in accordance with our technical instructions and is restricted to replacement of defective material against the original invoice cost. Würth Gulf does not take responsibility for any defects caused by wrong application during installation or when material is applied on non-conforming substrates.

Name: Abdul Rahman Hussein

Designation: Category Manager / Chemicals

Date: 12.9.2023

Company Seal

وورث جلف م.م.ح
WÜRTH GULF FZE
P.O.Box: 17036
Product Department

DRAFT

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