



**ADF** **FAST**  
CORP.

# **Construction Manual**

[www.adfastcorp.com](http://www.adfastcorp.com)

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## ADFAST CORP.

**1980** - Promeco

Opening of distribution centers (1986 - 2003)

**1986** - Adfast Corp.

- Rivets Unlimited (Montreal and Toronto)
- Adchem Adhesives (Montreal and Toronto)
- Robots Machineries

**1993** Dutab distribution and retail

**1998** \$1 Million investment in Silicone production

**2003** Sigma Certification

- 2 Black Belt
- 15 Green Belt

**2005**

\$2 Million investment in Urethane production

**2009**

### AFI (All For I)

- Merger under one name "ADFAST"
- IT investment 1.2 Million
- ERP
- Call Center - IP Phone
- New infrastructure

**2010-2011**

- 11 shareholders (4 Dandurand and 7 employees)
- 100 employees
- ISO 9001-2008
- Distribution network in Canada and the USA
- International Sales (ISA: International Sales Adfast)
- GYM
- Health and Safety
- Investment in research and development
  - New products
  - Technology
  - Colors

**2012**

- Research and Development for floor and roof coating systems
- Independant ASTM laboratory

**2013**

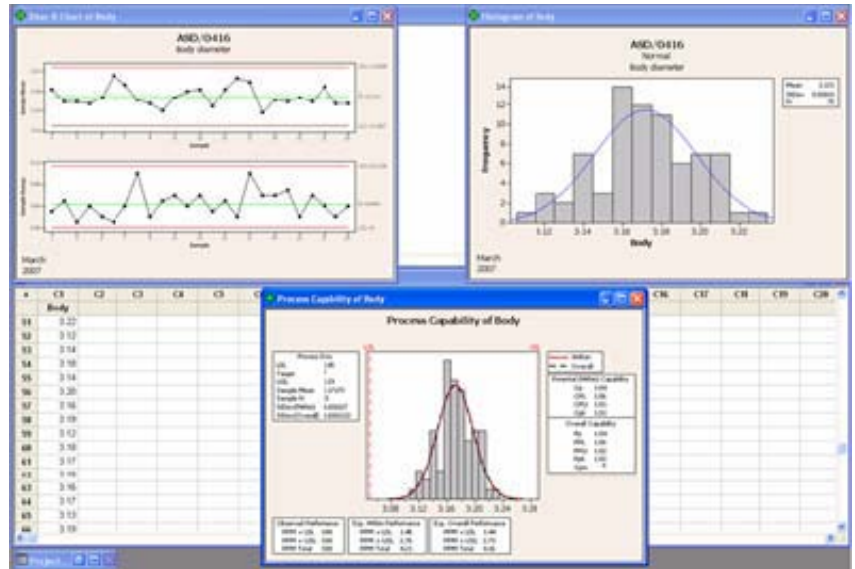
- New silicone high speed production line



## QUALITY SUMMARY

### SIX SIGMA

Adfast Corp. has adopted Six Sigma, a systemic approach that thrives on reducing variation in processes, as its business philosophy. Decision making is based on strong statistical facts and the improvement process driven by Six Sigma tools. The ultimate goal is to attain efficiency through robustness of processes.



### QUALITY ASSURANCE

Adfast Corp's quality management system is structured according to the process approach. It is built to satisfy both ISO 9001:2008 and ISO/TS 16949:2002. Our quality policy is to aggressively identify and exceed customer requirements in assembly technologies ; provide technical expertise supported by high quality products at a low cost ; encourage full involvement and support from employees ; achieve higher levels of performance by continuous process improvement ; and generate sustained profitable growth.

### STATISTICAL PROCESS CONTROL

Process efficiency and capability are monitored by statistical tools called control charts. With the help of these charts , we can eliminate special causes of variation and predict their impact on our processes. A thorough statistical analysis is continuously conducted to make sure that every process is under control (normality, capability, ...).

### APQP - PPAP (PRODUCTION PART APPROVAL PROCESS)

We ask that our customers approve our products using a rigorous process known as PPAP, a standardized methodology developed by Ford, GM and Chrysler used to validate products and demonstrate process effectiveness. PPAP covers everything from process flowcharting, production capacity, design, inspections, measurement system analysis, process control, capability, and quality certifications.

## **ADFASST SILICONE TECHNICAL MANUAL**

Adfast's technical manual outlines the procedures required for proper sealant application, in order to ensure quality and long term performance of our silicones. For particular cases not described in the manual, we encourage clients to contact one of Adfast's technical representatives, whom would be glad to help with any questions or issues. Adherence tests to all substrates, with the help of one of our technical representatives, are strongly recommended before the use of any Adfast sealant.

### **SURFACE PREPARATION**

In order to ensure long term performance, notably structural resistance and sealing, proper surface preparation is necessary before silicone application. Failure to comply to Adfast's substrate preparation recommendations could result in guarantee annulment.

### **APPLICATION**

#### **Cleaning**

The surface must be clean, dry, and free of oil, grease, dust, or other contaminants. Any previously applied caulking or oxidation must be removed entirely with a scraper, chisel, sand paper, or sand blast.

Substrates must be cleaned with 99.9% isopropyl alcohol.

When re-caulking, the old sealant must be removed completely to the original substrate with scraper, chisel, sanding abrasion, sand blasting or other suitable mechanical means. Following cleaning, the substrate must be clean and free of oxidation.

The first cloth should be coated in solvent and used to vigorously wipe the surface, whereas the second cloth should be dry and used to wipe away the solvent immediately afterwards, leaving no rag residues behind. In order to prevent future contamination, the solvent should be poured onto the cloth using an airtight squeezable container, rather than submerging the cloth inside the bottle.

The cleaner must be contained in a hermetically sealed container with a compressible type nozzle. Do not soak the cloth in a container.

Apply caulking quickly after cleaning and finishing.

## **ADFAST SILICONE TECHNICAL MANUAL**

### **Primer**

In some cases, the application of a primer may be required, depending on the substrate and the adhesion test.

The finish must be applied after complete cleaning of surfaces. The use of masking tape is recommended to protect adjacent surfaces. The finish can be applied with a rag on smooth surfaces or with a clean brush on rough surfaces. The finish must be applied in thin layers otherwise adhesion may be affected. Allow the finish to dry completely before applying the sealant. The sealant must be applied within hours of finish application. If the sealant must be applied the following day, protect the finish from the bad weather or remove and reinstall the following day.

### **General information on sealant application**

Once the substrate surfaces are cleaned and finished (if necessary), proceed without delay to the application of the sealant. According to the nature of the joint, mask the adjacent surfaces with masking tape. The sealant must be applied uninterrupted with the help of a gun or pump. The tool must be clean and cannot contain another sealant than that applied. The sealant must fill the joint cavity without creating bubbles. Once the cavity is filled, work the joint before a skin forms on the surface. Use a spatula to slightly compress and smooth the joint. A spatula soaked in soapy water can be used, unless otherwise indicated by Adfast's technical team. Masking tape must be removed within 15 to 20 minutes of joint shaping.

### **Sealant application for structural glazing**

All the procedures described above are to be followed. The glass must be firmly held in the framework with the help of temporary clamps, when positioned vertically. The glass must be supported continuously on the framework via a precast silicone tape. The structural silicone must completely fill the cavity of the joint to provide the desired resistance. The frames should not be subjected to vibrations or movements during sealant cure. The frames cannot be moved or placed vertically until the sealant is fully cured. Please speak to Adfast's technical team for further details, as this varies from one sealant to the next.

Once the structural silicone is cured, the temporary fasteners can be removed in order to install the tightening silicone between adjacent glasses.

# **AUTOMATED SEALANT MANUFACTURING PROCESS**



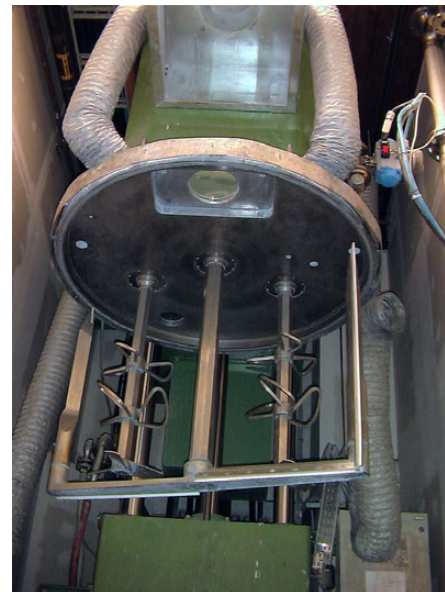
Bulk delivery of raw material



Automatic transfer system



Polymerization



Compounding unit

## RESEARCH AND DEVELOPMENT



R&D Chemical team



Batch Pilot at low level

A team of Chemical Engineers working on the development of new sealants, adhesives and coating technologies.

To their credit, our products outperform all existing sealants and adhesives in the categories of silicone and polyurethane in the industries that we serve.



## RESEARCH AND DEVELOPMENT

- Chemical composition
- Degradation factor
- Proper product selection
- Type of silicone
- Important properties
- Adseal Construction 4580 series
- Adseal Structural 4940 series
- Protection glazing
- ASTM tests
- Design and installation of sealants

### Chemical composition : 2 main categories

#### Organic composition (C-C-O-C-)

- Polyurethane
- Acrylic

#### Inorganic composition

- Silicone (-Si-O-Si-O-)

### Degradation factor

The main factor is light (Ultra-Violets)

#### Cause

- A degradation of the C-O and C-C connections
- Si-O link remains intact

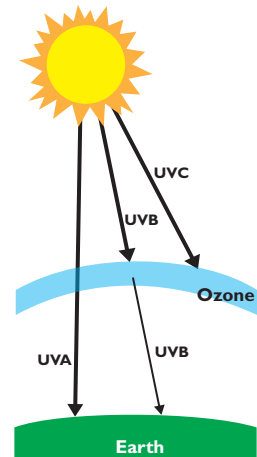
### Proper product selection

#### Avoids

- Cracks
- Hardening
- Loss of performance
- Discoloration
- Peeling (loss of adherence)

### Type of silicone

Neutral Silicone	Acetoxy Silicone
No odor	Vinegar odor
Sealing applications for residential, commercial, structural and non structural	Application for bathroom and kitchen (resistance to funghi and bacteria)
50 % elasticity	25 % elasticity
Life span : 50 years	Life span : 25 years
Bonds to PVC	Does not bond to PVC



## RESEARCH AND DEVELOPMENT

### Important properties

#### Adherence

- Large variety of materials

#### Life span

- 12 months if stored between 15°C and 25°C (59°F and 77°F)

#### Movement capacities

- Determined by the ASTM

#### Elasticity measurement (modulus)

- High modulus (low elasticity) like our Adseal Structural 4940 series
- Low modulus (higher joint movement - high elasticity) like our Adseal Construction 4580 series

### Adseal Construction 4580 series

- One Part sealant which vulcanizes when in contact with moisture
- Does not sag
- No odor
- Very good adherence to : glass, several types of wood, ceramic, mortar, cement, brick, stones, metal (alloy, steel, stainless, galvanized, galvalon) and PVC

#### Application

- Non structural sealant

### Adseal Structural 4940 series

- One Part sealant which vulcanizes when in contact with moisture
- Does not sag
- No odor

#### Applications

- Curtain wall manufacturing
- Reinforced panel manufacturing
- Structural glazing

#### Criteria

- Adheres to glass and structure
- Allows wind charges to be transferred to structures
- Strong and flexible, to allow movement
- Good life span



## RESEARCH AND DEVELOPMENT

### Glazing protection

New requirements: use of hurricane debris resistant windows.

#### Solution

Use of laminated glass windows and a structural silicone sealant to anchor the laminated glass in the framing.



### ASTM Tests (by the CRIQ on behalf of Adfast)

ASTM	Adseal structural 4940	Competitor
ASTM C-639 Flow, sagging or fold	4 hours at 3°C (37°F) : 0 % 4 hours at 50°C (122°F) : 0 %	2.54 mm / 0.1 in
ASTM D-2240 Hardness, Shore scale	37	35
ASTM C-794 Peeling resistance	34lb/po	32 lb/po
ASTM 719 Move capacity	± 50 %	± 50 %
ASTM C1248 Stain ability, marble, brick, concrete, granite, limestone	None	None

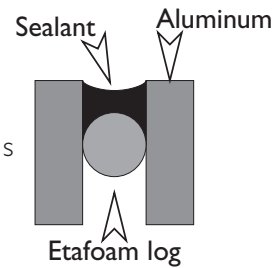
ASTM C-1135 Traction strength		
At 25 % extension	88 psi	45 psi
At 50 % extension	105 psi	60 psi
Tensile	168 psi	78 psi
Extension at break	200 %	153 %

ASTM C-1135 and G 53: Aging test		
At 25 % elongation	70 psi	35 psi
At 50 % elongation	80 psi	50 psi
Tensile	91 psi	93 psi
Extension at break	159 %	114 %

## RESEARCH AND DEVELOPMENT

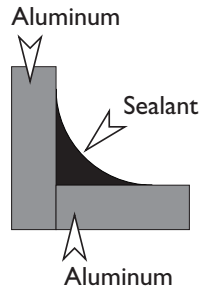
### Joints designed against bad weather

- Make a hourglass shaped joint, for better results
- Ratio 2:1 width-depth
- Use an expanded PE foam log to avoid sticking to 3 surfaces



### Angular joints

- Perpendicular Surfaces
- Minimal contact of ¼"



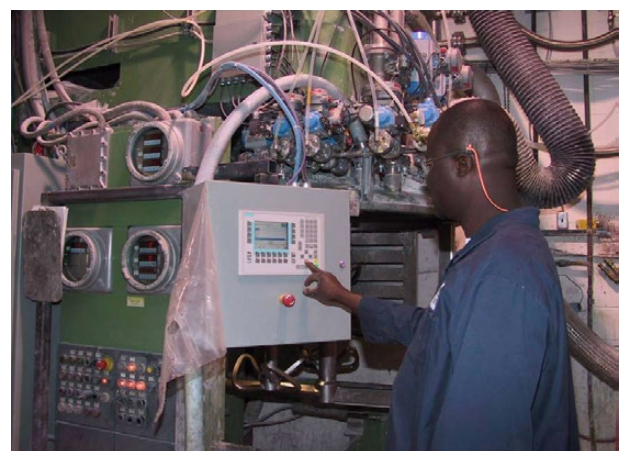
### Sealant installation

- Clean and dry the substrates
- Apply a finish (if necessary)
- Install the expanded PE foam log (if necessary)
- The bottom of the expanded PE foam log joint must be 25% larger than the joint itself
- Install the sealant
- Use suitable tools for the sealant finish
- Conduct an adherence test

## SILICONE PRODUCTION

### Batch manufacturing in 1300L vessel

- Cartridges 304ml / 850 ml
- Sausages 400ml / 600ml
- Pails 20L
- Drums 205L
- Production is controlled by operators from a (HMI) screen
- Pre-programmed and saved formulations and procedures



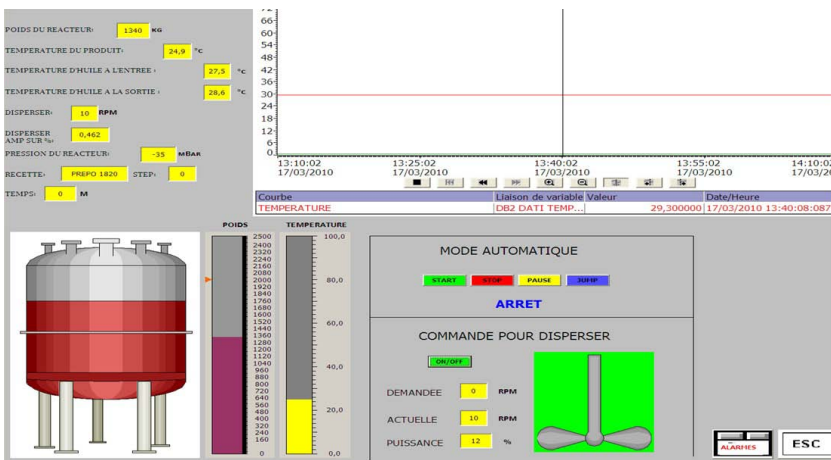
## RESEARCH AND DEVELOPMENT

### Batch manufacturing in 1300L vessels

- Automatic raw material pumping
- Raw material storage in tanks ranging from 300L to 20,000L
- JIT "Just In Time" management to reduce the cost incurred by raw material inventory and finished products



- Production and equipment is remotely supervised
- Alarms are sent to the R&D team during abnormal temperature/oil levels or raw material variations



- Two component packaging
- Bonding agent added in the cartridge and not in the vessel
- Eases cleaning
- Reduces the risk of hardening in the vessel
- Possibility to manufacture more than one color with a single batch of paste
- Increase in productivity



## SEALANTS

Our sealants are designed to fill unoccupied space and prevent air, water, and other environmental elements from entering or exiting, all the while permitting limited movement of substrates. We supply a broad range of sealants used in a variety of industrial, commercial and residential applications. Our sealants include silicones, acrylics, thermoplastics, polyurethanes, butyls, and the latest MS and Spur polymeric technologies. Adfast meets building codes and develops formulations in the goal of meeting specific end user requirements.

Adfast supplies various markets such as construction, automotive, transportation, aerospace and aeronautic, among others. The primary advantages of Adfast premium sealants such as Adseal 4550, Adbond 1500, Adthane 1800SF and many other formulations are excellent weatherability and longevity, as well as a resistance to wide temperature ranges.

### The primary roles of our sealants

Our sealants form a protective barrier, to exclude dust, dirt, moisture and chemicals, as well as to contain liquid or gas. They also serve as a protective coating on most surfaces and materials. Some sealants, such as our Adcoustik, eliminate noise and vibration, improve appearance, and bond substrates together. Adfast sealants can be used as electrical or thermal insulators, fire barriers, and may also be used for smoothing or filleting. Adfast sealants may often be called upon to perform several of these functions in a single application.

No matter what the application, our various trademarks Adsil, Adseal, Adseal Structural, Flexil, Adthane, Adbond, Adcoustik have three basic functions.

- Fill gaps between two or more substrates.
- Form a barrier through the physical properties of the sealant itself and by adhesion to the substrate.
- Maintain sealing properties for the expected lifetime, service conditions and environments.

Unlike our line of adhesive products, there are not many functional alternatives to the sealing process. The simplicity and reliability offered by our sealants make them the clear choice for performing these functions.



## SEALANTS

### One- and Two-Component Sealants

Two-component sealants such as our Adseal 4590 are composed of a base component and an activator component. The activator is mixed with the base component for a predetermined amount of time before application. Our Adseal 4590 is available in drums, pails and dual cartridges. Special equipment is not required for one-component sealant applications; however two-component sealants require special dual cartridge guns or mixing pump systems.

### Performance Properties

Important mechanical properties of our sealants include elongation, compressibility, tensile strength, modulus of elasticity, tear resistance and fatigue resistance. Depending on the nature of the application, a sealant may require very little or a great deal of strength. The sealant must have sufficient mechanical strength to remain attached to substrates during service as well as to provide a barrier. Substrates can move considerably, requiring sealant expansion and contraction without compromising adhesion to surfaces. Our Adseal silicones are formulated to give the greatest elongation. Defining movement capability is a complex process. Temperature, rate of temperature change and joint configuration will influence results.

In some applications, strength may be more important than elasticity, in which case Adseal Structural 4940, become ideal choices. Low strength, or more precisely, low tensile modulus, may be the most important factor in a situation where a sealant joins one or more weak surfaces. Tensile strength is needed primarily to avoid cohesive failure under stress and to prevent the transfer of stress between substrates.

Modulus may predict a sealant's ability to extend or compress. In general, low-to-medium-modulus sealants like the Adseal 4600 series are able to withstand significant movement without transferring stress to substrate materials. Some high-performance sealants like the Adseal 4600 are formulated to withstand greater movement than a joint is actually designed to accommodate. In fact, joints designed for about 25% extension/compression must often accommodate movement up to 50% or more. Thus, higher performance sealants provide an added safety factor. A change in elasticity or hardness upon aging may be an indication that further curing or degradation is taking place. Our Adsil sealant, an acetoxo based curing silicone will provide a 25% coefficient of expansion/contraction, compared to 50% for our neutral Adseal sealants.

## SEALANTS

### Speed of cure and strength of our sealants VS our competitors

The strength and curing speed of our sealants are superior to the competition. Curing speed is important for proper functioning of production lines, in order to prevent interruptions. The following tables present test reports generated by the Quebec Center for Research and demonstrate superior performance of our sealants at different humidity levels. Industrial manufacturers are forced to adjust production rates when using sealants in dry or humid environments. Our sealants are formulated to perform well in changing conditions.

### Adhesion

Adhesion is an important factor in determining a sealant's performance. Adhesion is primarily affected by the physio-chemical interaction between the sealant and the surface to which it is applied. However, in certain joints where there is great movement, strong adhesion of a sealant to a specific substrate may not be desirable. In these situations, the adhesive strength is stronger than the cohesive strength of the sealant; therefore the sealant may tear apart during expansion or contraction. To prevent such an occurrence, the sealant must not adhere to all surfaces. To achieve this affect, a bond-breaker or release material is applied to the bottom of the joint.

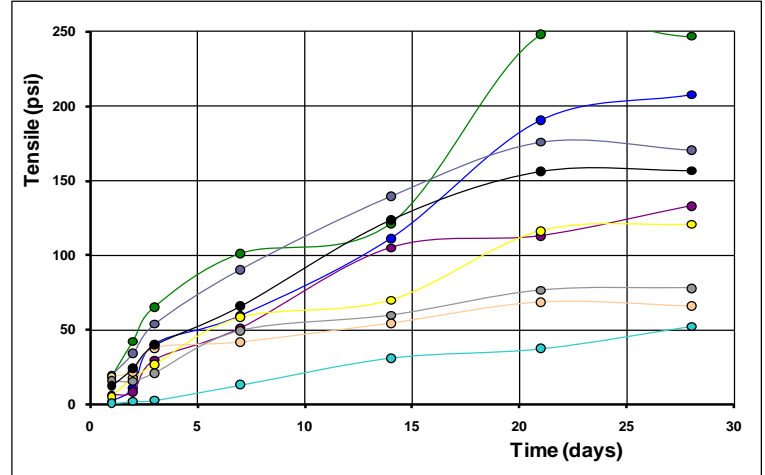
Conditions which influence the adhesion of sealants include water exposure, temperature extremes, movement, and surface cleanliness. Often, a surface-conditioning process or a priming step is necessary to ensure compatibility between a substrate and a specific sealant.



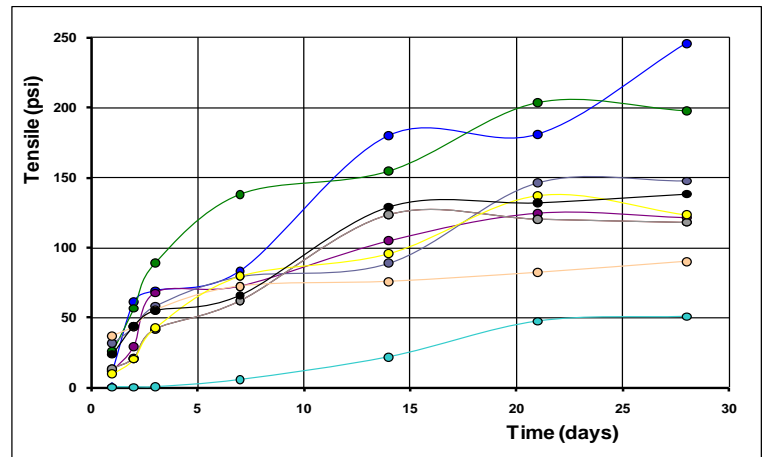
## SEALANTS

### Shear Strength (psi)

SEALANT	22 °C (72 °F) at 30% RH						
	1 d	2 d	3 d	7 d	14 d	21 d	28 d
ADBOND 1509	2	11	40	59	111	191	208
ADTHANE SF-1800	6	8	30	51	105	113	133
ADSEAL 1921	18	42	65	101	121	248	247
ADSEAL 4935	12	24	40	66	124	156	157
ADSEAL 4940	20	34	54	91	140	176	171
SILICONE 1795	1	2	3	13	31	37	52
URETHANE A100T	5	17	27	58	70	116	121
URETHANE 1221	19	22	38	42	55	69	66
URETHANE 1252	16	16	21	49	60	76	78



SEALANT	22 °C (72 °F) at 60% RH						
	1 d	2 d	3 d	7 d	14 d	21 d	28 d
ADBOND 1509	12	61	69	83	180	181	246
ADTHANE SF-1800	12	29	68	72	105	125	122
ADSEAL 1921	26	57	89	138	155	204	198
ADSEAL 4935	24	44	55	66	129	132	138
ADSEAL 4940	32	43	58	79	89	146	148
SILICONE 1795	0	0	0	6	22	47	51
URETHANE A100T	10	20	43	80	96	137	123
URETHANE 1221	37	43	55	72	76	82	90
URETHANE 1252	13	21	42	62	124	120	118



## SEALANTS

### Movement joint, expansion and retraction

Static Joint (essentially non-moving)—Joints that are mechanically fixed to prohibit movement, generally under 7.5% of the joint width.

Moving Joint (experiences cyclic movement)—Joints in which the shape and size of the sealant changes significantly when movement occurs, for example, at control, expansion, lap, butt, and stack joints

#### In the case of moving joints:

**Example A** : In a 2.5cm (1") width joint, a sealant with  $\pm 25\%$  movement capability will tolerate movement of only  $\pm 0.6\text{cm}$  ( $\frac{1}{4}$ "), providing for an expected total movement of 1.2cm ( $\frac{1}{2}$ "). Temperature and various other conditions can affect the tolerated movement of a given joint. Be very careful when selecting the right sealant for an application. We suggest our Adsil 4800 for this application.

**Example B** : In a 2.5cm (1") width joint, a sealant with  $\pm 50\%$  movement capability will tolerate movement of only  $\pm 1.2\text{cm}$  ( $\frac{1}{2}$ "), providing for an expected total movement of 2.5cm (1"). Temperature and various other conditions can affect the tolerated movement of a given joint. Be very careful when selecting the right sealant for an application. We suggest our Adseal Construction 4580 series for this application.

### Compressive force

The expansion and contraction joints in construction applications such, as concrete floors, also occurs when materials with different coefficients of expansion / contraction are bonded together and subjected to drastic changes in temperature. For bonding glass windows to a metal frame, the seal requires a sealant with sufficient elongation properties to allow the movements during temperature variations.

The compressive force is the maximum compressive force which a sealant can withstand without break or excessively removing the seal.

The maximum force of compression is the stage before the sealant loses the ability to return to its original size after being compressed.

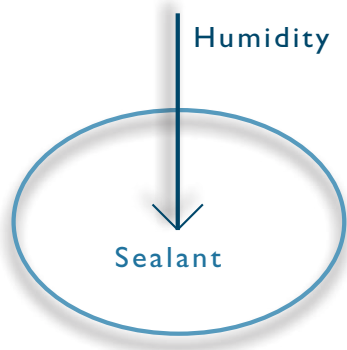
Compressive forces should be avoided for expansion joints. Relaxation of compressive forces is an important condition to allow for movement caused by expansion and contraction joints. Sealants whose modulus is very low does not necessarily have a good resistance to abrasion and mechanical wear.

Our sealant ADSEAL 4600 combines the benefits of having a modulus low enough to make extreme movements but with the necessary resistance to mechanical wear and abrasion. Our ADSEAL 4600 is an ideal choice for expansion joints and crack repair for airport runways.

## SEALANTS

### Selection of one or two part sealant?

In joints exceeding widths and depths of 13mm (1/2"), a one component sealant is not recommended. A two part sealant will cure in deep sections exceeding 13mm (1/2"). For a one part moisture curing sealant to fully cure, moisture must penetrate the sealant. However as the skin forms, water molecule penetration will slow drastically. Two part sealants react with a catalyst and curing times depend entirely on the percentage of catalyst mixed with the base material.



As per the picture and drawing, a one part moisture curing sealant such as Adfast Corp's Adseal 4600 or Adthane 1800 should never be used on applications requiring a bead of sealant exceeding 13mm (1/2") in diameter. The two part silicone Adseal 4590 A/B is the logical choice for larger joints.

### Highway Sealant

Our neutral silicone sealant ADSEAL 4600SL low modulus can undergo expansion of 100% and a compression recovering 50% of the original width of the joint. This self-leveling sealant is the best option for highway joints, runways and bridges which significant movements occurs. The ADSEAL 4600SL has a superior adhesion to asphalt and concrete surfaces.

Our one-component, room temperature curing silicone can be applied directly from a 800mL cartridge using a manual, pneumatic gun applicator or a pumped from a 200 liter drum. The ADSEAL 4600SL has superior resistance to weathering, is not affected by UV rays, resists rain, frost, ozone and extreme temperatures. Our ADSEAL 4600SL forms a skin in 30 to 45 minutes of application depending on temperature and humidity. Roads may be reopened as soon as our sealant application is complete

## SEALANTS

### APPLICATIONS FOR ADFAST SEALANTS

Applications	Adfast products
Curtain wall and architectural panel	<b>Adseal Structural 4940 series</b> <ul style="list-style-type: none"> <li>• Neutral cure silicone</li> <li>• Available in black, white and anodized aluminum</li> <li>• Cannot be painted</li> </ul>
Interior and exterior sealing joints for window, door, curtain walls and siding Corner block sealing ( curtain wall ) Sealed unit bedding Expansion joints Door and window manufacturing Ventilation	<b>Adseal Construction 4580 series</b> <ul style="list-style-type: none"> <li>• Neutral cure silicone</li> <li>• Available in 300 colors</li> <li>• Cannot be painted</li> </ul>
Clean rooms and food processing plant sealing joints Door and window manufacturing Sealed unit bedding Ventilation Mirror bonding	<b>Adseal 4550 series</b> <ul style="list-style-type: none"> <li>• Neutral cure silicone</li> <li>• Non corrosive</li> <li>• CFIA accreditation</li> <li>• Cannot be painted</li> </ul>
Shower and washroom antifungal sealing joints	<b>Xtrasil 4710 series</b> <ul style="list-style-type: none"> <li>• Acetoxy cure silicone</li> <li>• Cannot be painted</li> </ul>
Mirror bonding Glass bonding Food processing plant sealing joints	<b>Adsil 4800 series</b> <ul style="list-style-type: none"> <li>• Acetoxy cure silicone</li> <li>• CFIA accreditation</li> <li>• Cannot be painted</li> </ul>
Paintable interior sealing joints	<b>Adcryn 1090 series</b> <ul style="list-style-type: none"> <li>• Latex acrylic sealant</li> </ul>
Interior and exterior door and window sealing joints Siding sealing joints Concrete sealing joints Expansion joints	<b>Adbond 1920 series</b> <ul style="list-style-type: none"> <li>• Hybrid sealant</li> <li>• Paintable</li> </ul>

## SEALANTS

### Weather resistance

When selecting a sealant, the user must evaluate the environment the cured sealant will be subjected to.

Whether it be direct sun light in Arizona, freezing temperatures in Alaska or wet and humid weather in the west coast regions, only few sealant products will resist such environments for sustained periods of time.

Polyurethane sealants have very weak UV resistance and high durometer sealants lack sufficient coefficient of expansion/retraction to allow movement during temperature changes or freezing.

The required level of water resistance, whether an application is under or above the water line or simply subjected to rain for short period of time are critical questions for proper sealant selection. Of course, some sealants such as our Adseal Construction 4580 series and Adseal Structural 4940 series withstand all UV, water, freezing and chemical resistance.



### Curing time of sealants

A moisture curing sealant will be the fastest one part sealing compound. Solvent and water based sealants will evolve into a rubber compound very slowly as they first have to evaporate their water or solvent before the dissolved rubbers can solidify. The ideal temperature and humidity level for moisture curing sealants is 25°C (77°F) at 50% relative humidity.

<b>Tack free time silicone vs. polyurethane * (ASTM-C679)</b>	
Adseal Construction 4580 series	25 minutes
Polyurethane Dymeric 240	3 à 4 hours
Polyurethane Dymonic	18 hours
Polyurethane Sikaflex IA	3 hours
Polyurethane Sonolastic NPI	maximum 72 hours

\*Information based on web data sheets provided from the respective manufacturer

## SEALANTS

### Surface Preparation

Adseal Structural 4940 series will bond to many clean surfaces without the aid of a primer. A sample test/evaluation should be conducted in order to determine the bond strength for each specific application. For difficult-to-bond substrates, use of a compatible Adfast primer is recommended.

All surfaces should be thoroughly cleaned with 99.9% isopropyl alcohol (IPA) to remove dirt, oil and grease. The surface should then be wiped dry before applying the adhesive/sealant.

### Dispensing

Our one part component sealants are ready-to-use, available in collapsible squeeze tubes, caulking cartridges and bulk containers. Collapsible tubes may be squeezed by hand or with the aid of mechanical wringers. Air-operated dispensing guns may also be used with tubes. The sealant may be dispensed using a simple mechanical caulking gun or an air-operated gun. Note: when using air-powered caulking guns, do not exceed 45 psi.

Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units.

Pumps specifically designed for one-component RTV silicone rubber have Teflon seals, packings and lined hoses to prevent moisture permeation and pump cure problems. Specific details on dispensing systems and manufacturers are available upon request.



### Application and Curing

The consistency of our sealants make handling easier. The curing process begins with the formation of skin through the entire thickness applied.

A 3mm (1/8"), the sealant dries completely after 24 hours at 25 ° C (77 ° F) and 50% RH.

The sealant should be applied in a continuous operation and must be pressed lightly on the surface with a tool to shape. Shaping must be done immediately after application and before skinning. Surfaces must be clean, free of dust and ice.

Cleaning tools or non-porous surfaces coated with non-hardened material can be done using a solvent. On porous surfaces the excess sealant has to be removed by abrasion or other mechanical methods

## **SEALANTS**

### **Handling and Storage**

General and local exhaust ventilation is recommended. Avoid contact with skin and eyes. Do not breathe vapors. Do not store with oxidizing agents. Keep container closed and away from water and moisture. Wear adequate respiratory protection if the product is used in large quantities, confined spaces or in any other situations where exposure limits may be approached or exceeded. A full-face mask is recommended. Recommended Filter type: AXE. The choice of a filter type depends on the amount and type of chemical being handled in the workplace. Regarding the type of filter, contact the supplier for breathing apparatus.

Wear chemical resistant gloves: Silver shield (TM). 4H (TM). Viton (TM). Butyl rubber. Nitrile rubber. Neoprene rubber. Regarding the time of penetration of gloves, please contact your supplier of protective gloves against chemicals. Eye protection: you should wear safety glasses.

## SEALANTS

### Adhesion

Adhesion of a caulking joint depends on several factors, including cleanliness of the substrate's surface and chemical compatibility between the substrate and caulking.

Substrates such as glass, aluminum, PVC, and wood have chemical properties that provide a strong affinity to silicone.

ADF FAST can, upon request, evaluate the surface stress of a given substrate. Adhesion tension, peeling, and shearing of our silicones can be tested on substrate samples provided by customers. ADF FAST can develop silicones that optimize particular substrates without the need for primers or adhesion promoters, thereby reducing the time and difficulty of application.

Glass has one of the best affinities and thus adhesion to silicone. Anodized or painted aluminum with a coating containing fluorocarbon or polyester powder adheres well to silicone. A substrate's production process varies from one manufacturer to another. The adhesion, therefore, could also vary, especially for substrates such as PVC. A change in the chemical composition of a substrate or a step in manufacturing process can influence the adhesion of silicones. Adhesion tests are therefore a necessity.

A well adhered joint must tear within the silicone and not separate from the interface of the substrate when subjected to a tension test.

### Adhesion in tensile

	<b>ADSEAL STRUCTURAL 4940</b>	<b>ADSEAL 4550</b>	<b>ADSEAL CONSTRUCTION 4580</b>
Glass	5	5	5
Anodized aluminum	5	5	5
Painted aluminum	4	4	4
Stainless Steel 304	4	4	4
Galvanized Steel	4	4	4
Galvalume	4	4	4
PVC type 1	5	5	5
PVC type 2	4	4	4
Fibre Glass	5	5	5
Brick	5	5	5
Concrete	5	5	5
Granite	4	4	4
Wood	4	4	4
ABS	3	3	3
Polyethylene	1	1	1
Polypropylene	1	1	1

5 : excellent adhesion

1 : mediocre adhesion



## SEALANTS

### Exterior joints design

Caulking is used to join two surface materials separated by a small space. Materials can be similar or different. The caulking must be compatible with the substrates in order to adhere well. Compatibility ensures that the materials in contact do not deteriorate under certain conditions of use. For example, Neoprene releases oils which can stain the silicone when in contact. Two compatible materials can have no adhesion; which is the case with polypropylene and silicone.

There are two types of exterior joints: joints which are not subjected to movement and vibration, and those that are.

**Fixed joints** (not subjected to movement and vibration) must mainly be tight. They do not experience any structural resistance. They require a caulking of low modulus; in other words, flexible. This type of caulking does not require a high tension resistance. The silicone joint should cover the substrate by at least 6mm. In this case, our Adseal 4550 series and Adseal Construction 4580 series are recommended.

**Dynamic joints** (subjected to movement and vibration) must absorb various constraints, (stretching, compression, shearing) generated by wind, material weight, temperature variations, etc. The silicone must support these constraints while remaining firm and elastic. To establish the width of the joint, the coefficient of expansion and retraction of the two sheets of metal should be taken into consideration.

The minimal width of a compressed joint must be greater than or equal to 6mm. The silicone must adhere only to the two surfaces subjected to the movement. The use of an anti-adherence ribbon or an expanded PE foam log is recommended to avoid adhesion to three surfaces. The depth of the silicone joint should be half its width, without being inferior to 6mm. In this case, our Adseal 4550 series and Adseal Construction 4580 series would be recommended.

**Structural glazing joints** are subjected to the forces of wind and thus experience cyclic and dynamic variations in tension and compression. The required silicone should have a high modulus with less elasticity, but a strong resistance in tension. Please refer to your provincial construction code concerning the resistance calculations. Our Adseal Structural 4940 series meets the national standards.

When subjected to suction caused by the forces of wind, a structural silicone joint will support the load in a cyclic rather than permanent way. A silicone joint exposed to permanent forces will be subject to fatigue. In the case of a skylight bonded with silicon, a more severe security factor should be used. Additional mechanical fixings can be recommended.

## ADFOAM SERIES

### ADFOAM -5°C - 1885-2



ADFOAM 1885-2 is available in 750ml can. The Adfoam 1885-2 Gun Grade may be used to seal, fill, bond, reduce sound, eliminates air drafts and insulates with R-5 factor per inch of foam. ADFOAM 1885-2 Gun Grade bonds to most construction surfaces and is used for plumbing, electrical, HVAC, refrigeration, sound control and insulation around windows and doors. Can be applied till -5°C.

### ADFOAM PRO - 1875



ADFOAM Pro 1875 is available in 600ml can. The Adfoam Pro 1875 Gun Grade may be used to seal, fill, bond, reduce sound, eliminates air drafts and insulates with R-5 factor per inch of foam. ADFOAM 1885-2 Gun Grade bonds to most construction surfaces and is used for plumbing, electrical, HVAC, refrigeration, sound control and insulation around windows and doors.

### ADFOAM -25°C - 1825



ADFOAM -25°C 1825 is a one-component, self-expanding, ready-to-use polyurethane foam, with propellants, which are completely harmless to the ozone layer. It is applied by a special foam gun and has been developed for applications at temperatures as low as -25°C. Adfoam -25°C is ideal for installing windows and door during winter time.

### ADFOAM STRAW GRADE - 1880



ADFOAM Straw Grade 1880 is available in 750ml can and is applied with a straw. The Adfoam Straw Grade 1880 may be used to seal, fill, bond, reduce sound, eliminates air drafts. ADFOAM Straw Grade 1880 bonds to most construction surfaces and is used for insulation, plumbing, electrical, HVAC, refrigeration, sound control and windows and doors.

## ADFOAM SERIES

### ADFOAM - 1890



ADFOAM 1890 is available in 16LB canister. The Adfoam 1890 may be used to seal, fill, bond, reduce sound, eliminates air drafts and insulates with R-5 factor per inch of foam. ADFOAM 1890 bonds to most construction surfaces and is used for plumbing, electrical, HVAC, refrigeration, sound control and insulation around windows and doors.

### ADFOAM CLEANER - 6030



Adfoam Cleaner 6030 is a multi-purpose cleaner intended for use as an internal cleaning single component foam dispensing gun. This cleaning agent is ideal for uncured foam and cleaning can valves.

### Plastic foam gun - 22920



### Metal foam gun - Adfoam gun



### Metal foam gun extension - Adfoam nozzle



## ADSEAL VS COMPETITION

### NON STRUCTURAL SEALANT FOR DOOR, WINDOWS AND SIDING

ASTM	Adseal série 4580	Tremco Dymonic	Tremco Dymeric 240	Spectrem 3	Sikaflex IA	Dow Corning CWS
ASTM C-794 peel strenght	20	10	20-28	25-35	20	20-28
ASTM D-412 tensile strenght(psi)	175	n/d	138	155	175	180
ASTM D-412 elongation at break (%)	450	n/d	398	n/d	550	550
ASTM D412 tensile strenght 100% elongation (psi)	57	n/d	52	55	85	n/d
ASTM C-510 stain and color change	concluant	concluant	concluant	concluant	n/d	concluant
ASTM-D-2240 hardness shore A	30	17-23	35-40	15	35-45	20-30
ASTM-C-719 joint mouvement capability (%)	±40	±25	±50	±50	n/d	±40

### STRUCTURAL SEALANT FOR CURTAIN WALL AND PANELS

ASTM	Adseal Structural 4940	Dow Corning 795	Tremco Spectrem 2
ASTM C-639 flow sag or slump	0%	0.1"	n/d
ASTM D-2240 hardness shore A	37	35	37-40
ASTM C-794 peel strenght 180 degrees (lb/po)	34	32	16-22
ASTM-C-719 joint mouvement capability (%)	±50	±50	±50
ASTM C-1248 stain and color change	aucun	aucun	aucun
ASTM C-1135 tensile adhesion strenght 25% elongation(psi)	88	45	n/d
ASTM C-1135 tensile adhesion strenght 50% elongation(psi)	105	60	n/d
ASTM-C-1135 tensile at break (psi)	168	78	123
ASTM C-1135 elongation at break (%)	200	153	261
ASTM C-1135 + G53 (weathermeter test) tensile adhesion strenght 25% elongation(psi)	70	35	n/d
ASTM C-1135 + G53 (weathermeter test) tensile adhesion strenght 50% elongation(psi)	80	50	n/d
ASTM C-1135 + G53 (weathermeter test) tensile at break (psi)	91	n/d	n/d
ASTM C-1135 + G53 (weathermeter test) elongation at break (%)	159	n/d	n/d

Data for Adseal products based on CRIQ tests.

Information based on web data sheets provided from the respective manufacturer

## **ADFAST SILICONE ACCOMPLISHED PROJECTS**

- Complexe Lebourgneuf Québec, Québec
- Techno Parc, Trois-Rivières
- Boréalys, Trois-Rivières
- 305 Charest Québec, Québec
- CHLD, Trois-Rivieres
- AD Prévost
- Vitrierie Ste-Julie (projet BG Distribution, 4500, Molson, Montréal) avec ADSEAL 4943
- Le Sommet 2, St-Augustin de Desmaures
- Les boisées du séminaire, St-Augustin de Desmaures
- Usinage Nétur, St-Hubert
- Boulevard Fiat, Montréal
- Condominiums Lachine
- Clinique Opmédic, St-Hubert
- Condominiums Le quartier-cité 10-30, Brossard
- Centre Jeunesse Estrie, Sherbrooke
- Centre de Collaboration Miqro Innovation, Bromont
- Park Avenue Lexus, Ste-Julie
- Looney's, Montréal
- Cité des Tours, St-Jean
- Geysier 2, Longueuil
- Le Neuville, Montréal
- Reitmans, Montréal
- Seville, Montréal
- Cimetière Côte des Neiges
- Le Ligori, Montreal
- Cowansville detention center
- St-Charles-Borromee school
- St-Jerome hospital
- Sherbrooke college
- 3535 Cremazie, Montreal
- Bombardier prototype plant, St-Bruno
- Exceldor production plant, St-Bruno
- Pierre-Eliot Trudeau airport
- John-Fisher school, Montreal
- Cité Verte, Quebec

## ADFOAM I885-2 Polyurethane foam

### Description

ADFOAM I885-2 Gun Grade is a one-component, moisture cure, self-expanding, ready to use polyurethane foam with a screw top specially developed for an application gun.

ADFOAM I885-2 Gun Grade may be used to seal, fill, bond, reduce sound, eliminates air drafts and insulates with R-5 factor per inch of foam. ADFOAM I885-2 Gun Grade bonds to most construction surfaces and is used for plumbing, electrical, HVAC, refrigeration, sound control and insulation around windows and doors.

It contains CFC-free propellants, which are completely harmless to the ozone layer.

### Characteristics

- Minimal expansion. Will not cause any distortion
- Excellent adhesion to most materials (Except PE, PP and Teflon)
- High thermal and acoustic isolation
- Very good filling capacities
- Excellent mounting capacities
- Excellent stability (no shrink or post expansion)
- Very precise application due to foamgun system

### Physical properties

Base	Polyurethane
Consistency	Stable foam, thixotropic
Curing System	Moisture cure
Skin formation (20°C/65% R.H)	± 8 minutes
Drying Time (20°C/65% R.H)	Dust free after 20-25 min.
Curing Rate (20°C/65% R.H)	1 hour for a 30mm bead
Yield	1000 ml yields 35-40 liters cured foam (2136-2441 in <sup>3</sup> )
Shrinkage	None
Post Expansion	None
Cellular Structure	Ca 70-80% closed cells
Specific Gravity	Ca 25 kg/m <sup>3</sup> (extruded fully cured)
Temperature Resistance	-40°C to 90°C (cured)
Color	Champagne
Fire Class (DIN 4102 part 2)	B2
Insulation factor	± 31 mW/m. K
Shear Strength (DIN 53427)	12 N/cm <sup>2</sup>
Pressure strength (DIN 53421)	3 N/cm <sup>2</sup>
Bowing strength (DIN 53423)	7N/cm <sup>2</sup>
Water Absorption (DIN 53429)	1% vol.
Acoustic rating	Rts, w = 58 dB
VOC	196 gr/L

## **ADFOAM 1885-2 (continued)**

### **Applications**

- Installing of window and door frames.
- Filling of cavities.
- Sealing of all openings in roof constructions.
- Creation of a soundproof screen.
- Mounting and sealing windows and doorframes.
- Connecting of insulation materials and roof constructions.
- Application of a soundproofing layer on motors.
- Improving thermal isolation in cooling system.

### **Specifications**

UL approved No. R26654.

- Caulking and sealants surface burning characteristics applied to inorganic reinforced cement board.
- Flame spread: 30
- Smoke developed: 50
- 38FN

### **Directions for use**

Surfaces must be clean, free of dust and grease. Moistening of the surfaces improves adhesion, curing and cellular structure.

Shake the aerosol can for at least 30 seconds. Fit the gun on the adapter. Moisten surfaces with a water sprayer prior to application. Fill holes and cavities for 65% as the foam will expand.

Repeat shaking regularly during application. If you have to work in layers repeat moistening after each layer. Fresh foam can be removed using ADFOAM 6030 gun cleaner. Cured foam can only be removed mechanically.

For later utilisation, when there is still some foam inside the can, keep the can screwed on the gun.

Cured foam may be trimmed or sanded. Cured foam must be protected from UVB radiation by painting or applying a top layer of sealant (silicone or hybrid sealant).

Application temperature: 5°C to 35°C (20°C to 25°C recommended).

**Packaging :** Aerosol can 750mL net.

**Shelf life :** 12 months from date of production in an unopened packaging in a cool and dry storage place between +5°C and +25°C. Always store can with the valve pointed upwards.

### **Precautions**

Apply the usual industrial hygiene. Wear gloves and safety goggles.

Remove cured foam by mechanical means only, never burn away.

If you need additional information, do not hesitate to contact your technical representative.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

For Industrial Use Only

### **IMPORTANT**

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## ADFOAM I 825 Polyurethane foam

### Description

ADFOAM I 825 is a B3 one-component, high yield, self-expanding, polyurethane foam, with propellants, which are completely harmless to the ozone layer. It is applied by a special foam gun and has been developed for applications at temperatures as low as  $-25^{\circ}\text{C}$ .

### Characteristics

- Minimal expansion. Will not cause any distortion
- Excellent adhesion on most substrates (except Teflon, PE and PP)
- High thermal and acoustical insulation
- Very good filling capacities
- Excellent mounting capacities
- Excellent stability (no shrink or post-expansion)
- Does not slump at low temperature
- Can be applied at low temperatures
- Very precise application due to the foam gun system

### Physical properties

Base	Polyurethane
Consistency	Stable foam, thixotropic
Curing System	Moisture cure
Skin formation time at $20^{\circ}\text{C}$ ( $68^{\circ}\text{F}$ ) and 65% HR	$\pm 8$ minutes
Drying time at $20^{\circ}\text{C}$ ( $68^{\circ}\text{F}$ ) and 65 % HR	Dust-free after 20-25 minutes
Curing rate	See chart below
Yield	See chart below
Shrink	None
Post expansion	None
Cellular structure	70-80% closed cells
Specific gravity	$\pm 23 \text{ kg/m}^3$ (extruded, fully cured)
Temperature resistance	$-40^{\circ}\text{C}$ to $+90^{\circ}\text{C}$ when cured
Color	Champagne
Fire class (Din 4102 part 2)	B3
Insulation factor	32 mW/m. K
Shear strength (DIN 53427)	17 N/cm <sup>2</sup>
Pressure strength DIN 53421)	3 N/cm <sup>2</sup>
Bowing strength (DIN 53423)	7 N/cm <sup>2</sup>
Water absorption (DIN 53429)	Approximately 1% Vol

### Applications

- Installation of window and doorframe
- Filling of cavity
- Sealing of all openings in roof construction
- Creation of a soundproof screen
- Mounting and sealing of window and doorframe
- Connecting insulation materials and roof constructions
- Improving thermal insulation in cooling system



## ADFOAM 1825 (continued)

### Yield and Curing time

Temperature of the can: 18°C

Temperature	20°C	0°C	-10°C	-25°C
Ready foam volume	± 65 liters ± 3966 in <sup>3</sup>	± 40 liters ± 2441 in <sup>3</sup>	± 35 liters ± 2136 in <sup>3</sup>	± 30 liters ± 1830 in <sup>3</sup>
Curing time in joint of 3cm x 3cm	1.5 hour	3 to 5 hours	8 to 10 hours	10 to 12 hours

### Directions for use

Shake the aerosol can for at least 30 seconds. Fit the gun on the adapter. Moisten surfaces with a water spray prior to application (only when temperature >0°C).

Fill holes and cavities at 65 %, as the foam will expand. Repeat shaking regularly during application. If you have to work in layers repeat moistening after each layer (only when temperature is > 0°C).

Fresh foam can be removed using ADFOAM 6030 gun cleaner. Cured foam can only be removed mechanically.

For later utilisation, when there is still some foam inside the can, keep the can screwed on the gun.

Cured foam may be trimmed or sanded. Cured foam must be protected from UVB radiation by painting or applying a top layer of sealant (silicone or hybrid sealant).

Application temperature: -25°C to +25°C.

**Packaging :** Aerosol can 870 ml net

**Shelf life :** 18 months from date of production, in an unopened packaging in a cool and dry storage place between +5°C and +25°C.

Always store can with the valve pointed upwards.

### Handling and safety

Apply the usual industrial hygiene.

Wear gloves and safety goggles.

Remove cured foam by mechanical means only, never burn away.

Consult the MSDS for more information.

If you need additional information, do not hesitate to contact your technical representative.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

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## ADBOND 1920 General Purpose sealant/adhesive

### Description

ADBOND 1920 is an excellent 1-part, general purpose adhesive sealant. ADBOND 1920 provides a permanently flexible bond and can be used to attach materials that have dissimilar coefficients of expansion.

It may be used in conjunction with other fastening methods, such as blind rivets. ADBOND 1920 is a 100% solids, solvent free adhesive/sealant based on proprietary polymer technology.

The product adheres to a wide range of substrates without the need for primers, and is non-staining and odorless.

ADBOND 1920 meets the specification for CAN/CGSB 19.13-M87.

### Features

- Contains no isocyanates or solvents.
- Permanent elasticity from -40° to +100°C.
- Application temperature range from -5° to +35°C.
- Neutral, odorless and fast curing.
- Compatible with most industrial paint systems and lacquers, such as alkyd resin and dispersion based coatings.
- Paintable after skin-forming (wet on wet); this will not influence the curing speed.
- Excellent UV-resistance and very good aging properties.

### Physical properties

Tensile Strength by dumbbell shape (ASTM D412)	Tensile at break : 248 psi Tensile at 25 % : 46 psi Tensile at 50 %: 74 psi Tensile at 100 % : 128 psi Tensile at 150 %: 168 psi Elongation at break : 291 % Energy at break : 51 J/po <sup>3</sup>
Color	Customer's choice
Lap Shear Strength (ASTM D624)	36 lb/po
Shore A	34
Skin Time	20 minutes (50% HR)
Viscosity (HB) 1 rpm	2100 Pa.s
Specific gravity	1.406 kg/L
V.O.C.	18.22 g/L

### Adhesion

On clean, dry, dust and grease free substrates, ADBOND 1920 has good adhesion without the need for primers. Adhesion is possible on many substrates including : aluminium, copper, brass, galvanized metal, lacquered wood, metal substrates, PVC, epoxy, polyester, melamine, concrete and glass.

In case of severe bonding requirements, especially under wet conditions consult Adfast for proper primer recommendations.

Where applicable clean and degrease substrates with a suitable solvent such as ADSOLVE 6002, or ADSOLVE 6003.

## **ADBOND 1920 (continued)**

### **Directions for use**

ADBOND 1920 is easily extruded by manual or air-powered caulking guns supplied by Adfast.

In open joints Adbond should be tooled within 20 minutes using a spatula or putty knife, moistened with a soapy solution. Prevent the soap solution from penetrating between joint sides and sealant, as this will result in a loss of adhesion.

Dispensing the sealant from drums (20 liter or 200 liter) is also possible with special equipment. Consult Adfast for more dispenser information.

Uncured sealant can be removed with a clean cloth, with a recommended Adfast cleaner.

It is recommended that a trial be made first in order to check possible attack of the substrate whenever using a solvent or thinner.

### **Storage**

When stored in the original unopened containers in a dry location at temperatures less than 77°F (25°C), ADBOND 1920 SERIES offers a shelf life of up 12 months from the date of production.

### **Application**

- Sealant for coachwork, portable buildings, recreational vehicles, busses, railcars and truck bodies.
- Vibration suppression between metals, wood and combinations of wood and metal.
- Sealing welded seams in sheet metal.
- Elastic/constructive bonding of metals on wood, metal and glass.
- Sealing sandwich panels and bonding metal strips on sandwich panels.
- Sealing cold storage containers, metal tanks, etc.
- Paintable concrete vertical or horizontal joints.
- Paintable doors, windows and siding joints.

If you need additional information, do not hesitate to contact your technical representative.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

For Industrial Use Only

### **IMPORTANT**

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## ADSEAL 4550 Series RTV silicone

### Description

ADSEAL 4550 SERIES is a one-component product, thixotropic, non-flowable adhesive sealant that cures rapidly at room temperature and ambient humidity conditions, utilizing a low corrosive, oxime curing system. It may be used for many types of bonding and sealing applications including FIP gasketing. ADSEAL 4550 SERIES resist at temperature of -60°F to 450°F (-51°C to 260°C) intermittingly and of -40°F to 450°F (-40°C to 232°C) for a long period of time.

ADSEAL 4550 SERIES adhesive sealant is a paste-like, one-component material that cures to a durable, resilient silicone rubber when exposed to moisture in the atmosphere at room temperature. Due to its physical properties, it may be applied overhead or on sidewall joints and surfaces. It will adhere to glass, most types of wood, clean metals, silicone resins, ceramics, vulcanized silicone rubber, natural and synthetic fibers, as well as painted and many plastic surfaces. With its oxime neutral curing system, ADSEAL 4550 SERIES can be used for general sealing as well as electrical insulation. It presents no offensive odor during curing and will not corrode metal. (Discoloration of copper-based metals may occur when hermetically sealed). In addition, the product adheres well on alkali materials such as masonry.

### **ADSEAL 4550 SERIES CANNOT BE PAINTED.**

Due to ADSEAL 4550 SERIES silicone utilizing a moisture cure system, it must not be used in section depth greater than 1/2" (13 mm). For applications with section depths exceeding 1/2" (13 mm), two-component silicones are recommended.

### Specifications

- Meets the specification for CAN/CGSB 19.13-M87
- Approved by Canadian food inspection agency
- Approved AAMA 805.2-94, GROUP "A" AND "C"
- Approved AAMA 802.3, TYPE "I" AND "II"
- Meets the requirements of "U.S. Green Building Council® LEED®-NC Green Building Rating System for New Construction & Major Renovations Version 2.2, EQ Credit 4.1 (Indoor Environmental Quality – Low Emitting Materials: Adhesives & Sealants)"
- Meets specifications for ASTM C920, type S, grade NS

### Physical properties

Uncured	
Color	Available in different colors
Viscosity	Paste
VOC value	< 49g/L
Density at 23°C (g/cm <sup>3</sup> )	1.04 (clear) 1.26 (color)
Tack free time, min. (ASTM C 679)	15 (clear) 10 (color)
Mechanical	
Hardness (ASTM D2240, shore A)	20 (clear) 27 (color)
Tensile Strength, psi (ASTM D412)	115 (clear) 164 (color)
Elongation, % (ASTM D412)	774 (clear) 619 (color)
Tensile strength at 100% elongation, psi (ASTM D412)	31 (clear) 60 (color)
Shear strength, lb/in. (ASTM D724, die C)	18 (clear) 31 (color)
Extrusion rate of the silicone with a diameter of 4,6 mm and a pressure of 60 psi.	
Minimum	250 grams per minutes
Maximum	750 grams per minutes

## ADSEAL 4550 Series (continued)

### Applications

- Clean rooms and food processing plant sealing joints.
- Door and window manufacturing.
- Sealed unit bedding
- Ventilation.
- Mirror bonding.
- Electrical insulation sealing
- Adhering auto and appliance trim including metal, fabric and fabric-backed plastics.
- Bonding gaskets in heating and refrigeration units.
- Attaching screwless brackets or nameplates, and tacking plastic materials to metal.
- Sealing windows in oven doors and flues on gas appliances, flanged pipe joints, access doors.
- Formed-in-place gasketing for gear boxes, compressors, pumps.
- Sealing trailers, truck cabs.
- Bonding and sealing appliance parts.
- Anti-abrasion coating.
- Sealing marine cabins and windows.
- Filletting and caulking joints in sheet metal stacks, duct work and equipment housings.
- Recommended for wet-glazing.

### Directions for use

#### Surface Preparation

ADSEAL 4550 SERIES adhesive/sealant will bond to many clean surfaces without the aid of a primer. A sample test/evaluation should be made in order to determine the bond strength for each specific application. For difficult-to-bond substrates, use of a compatible primer is recommended. Consult your sales representative for more information.

All surfaces should be thoroughly cleaned with a suitable solvent such as ADSOLV 6003 IPA 99.9% or ADSOLV 6002 toluene to remove dirt, oil and grease. The surface should then be wiped dry before applying the adhesive/sealant.

#### Dispensing

ADSEAL 4550 SERIES silicone is a ready-to-use, one component material available in caulking 304 ml cartridges, 400ml sausages, 600ml sausages and bulk containers. Air-operated dispensing guns may also be used with cartridges and sausages. When dispensed from a caulking cartridge, the sealant may be dispensed using a simple mechanical caulking gun or an air-operated gun. Note: When using air-powered cartridge caulking guns, do not exceed 45 psi.

Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units. Pumps specifically designed for one-component RTV silicone rubber have Teflon seals, packings and lined hoses to prevent moisture permeation and pump cure problems.

Specific details on dispensing systems and manufacturers are available on request.

#### Application and Curing

ADSEAL 4550 SERIES adhesive/sealant's paste-like consistency makes it an easy material to work with. Tooling can be accomplished with a spatula or wooden paddle. A 5% solution of soap and water can be used for tooling.

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. In conditions of 75°F (24°C) and 50% relative humidity, a tack-free skin should form within 10 to 15 minutes of application. All tooling should be completed within the first 5 to 10 minutes, and is no longer practical once the tack-free skin has formed. Should masking tape be used to mask off an area, it too should be removed within the initial 5 to 10 minutes period and prior to the formation of the tack-free skin.

## **ADSEAL 4550 Series (continued)**

### **Directions for use**

High temperatures and high humidity will accelerate the cure process; low temperatures and low humidity will conversely slow the cure rate.

A 3mm (1/8 inch) section of sealant will cure through in approximately 24 hours at 77°F (25°C) and 50% RH.

ADSEAL 4550 SERIES can be applied at a temperature as low as -20°F (-29°C), taking that the surfaces are clean, dust free or not frozen.

### **Bond strength**

In addition to the effects of temperature and relative humidity, development of maximum bond strength will depend on joint configuration, degree of confinement, sealant thickness and substrate porosity. Normally, sufficient bond strength will develop in 12 to 24 hours to permit handling of parts. Minimum stress should be applied to the bonded joint until full adhesive strength is developed. Eventually, the adhesive strength of the bond will exceed the cohesive strength of the silicone rubber adhesive/sealant itself. Always allow maximum cure time available for best results.

### **Clean up and removal**

Before curing, solvent systems such as Adsolv 6003 IPA 99.9% or Adsolv 6002 toluene are most effective.

### **Precautions**

These products are manufactured and sold for industrial use only.

Uncured product contact irritates eyes. In case of contact with eyes, immediately flush eyes with water for 15 minutes. If irritation persists, get medical attention. Wearers of contact lenses should not handle lenses until all sealant has been cleaned from fingertips; sealant will transfer to lenses and cause severe eye irritation. To clean from the skin, wipe very thoroughly with a dry cloth or paper towel before washing with soap and water. Uncured product contact may irritate the skin.

Storage : when stored in the original unopened containers in a dry location at temperatures less than 80°F (27°C), ADSEAL 4550 SERIES offers a shelf life of up to 12 months from the date of production.

To prevent curing of the unused portion of an opened container, reseal tightly.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

For Industrial Use Only

### **IMPORTANT**

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## ADBLOCK 20-XXX Series Setting Block for Insulated Glass

### Description

Adblock 20-XXX series is a setting block made of flexible PVC fully compatible with Adseal Construction 4580 series and Adseal Structural 4940 series.

Adblock 20-XXX series is made for commercial, institutional or industrial applications on job site or in production plant.

1/4" and 3/8" dimensions have a groove on the length of the block which promotes the flow of water to the drain of the windows or curtain wall holes.

Adblock 20-XXX series is available in the following sizes:

- 20-125 x 1 = 1/8" x 1" x 4"
- 20-250 x 1 = 1/4" x 1" x 4"
- 20-375 x 1 = 3/8" x 1" x 4"

Other dimensions are available upon request.

### Physical properties

Color	black
Hardness	83-85
Length tolerance	± 1/8"
Width tolerance	± 0.025"
Thickness tolerance	± 0.010" for 1/8" ± 0.015" for 1/4" and 3/8"

Consult your sales representative for more information.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

For Industrial Use Only

### IMPORTANT

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## ADSEAL CONSTRUCTION 4580 Series RTV silicone

### Description

ADSEAL CONSTRUCTION 4580 SERIES is a one-component product, thixotropic, nonflowable adhesive sealant that cures at room temperature and ambient humidity conditions, utilizing a low corrosive, oxime curing system. It may be used for many types of bonding and sealing applications including FIP gasketing.

The ADSEAL CONSTRUCTION 4580 SERIES is a slow skin time that allows a longer work time.

Due to its physical properties, it may be applied overhead or on sidewall joints and surfaces. It will adhere to glass, most types of wood, clean metals, silicone resins, ceramics, vulcanized silicone rubber, natural and synthetic fibers, as well as painted and many plastic surfaces. With its oxime neutral curing system, ADSEAL CONSTRUCTION 4580 SERIES can be used for general sealing as well as electrical insulation. It presents no offensive odor during curing and will not corrode metal. (Discoloration of copper-based metals may occur when hermetically sealed). In addition, the product adheres well on alkali materials such as masonry.

### **ADSEAL CONSTRUCTION 4580 SERIES CANNOT BE PAINTED.**

Due to ADSEAL CONSTRUCTION 4580 SERIES silicone utilizing a moisture cure system, it must not be used in section depth greater than 13 mm (1/2 inch). For applications with section depths exceeding 13 mm (1/2 inch), two-component silicones are recommended.

ADSEAL CONSTRUCTION 4580 SERIES meets the specification for CAN/CGSB 19.13-M87 and ASTM C920, type S, grade NS, class 25

### Physical properties

Uncured	
Color	Available in a wide variety of colors
Viscosity	Paste
VOC (gr/l)	47.8
Density	1.29
Mechanical	
Skin Time (ASTM-C679, min)	25-30
Hardness (ASTM D2240, shore A)	30
Tensile strength at break (ASTM D-412, psi)	155
Elongation at break (ASTM D-412, %)	450
Tensile strength at 100% elongation (ASTM D-412, psi)	57
Young modulus (ASTM D-412, psi)	175
Joint Movement Capability (ASTM C-719)	± 40%
Peel Test 180* (ASTM-C794, lb/in)	20
Staining (ASTM-C510)	none
Shear Strength (ASTM D724, die C, lb/in.)	20
Extrusion rate of the silicone with a diameter of 4,6 mm and a pressure of 20 psi.	
Minimum	25 grams per minute
Maximum	150 grams per minute



## **ADSEAL CONSTRUCTION 4580 Series (continued)**

### **Applications**

- Interior and exterior sealing joints for window, door, curtain walls and siding.
- Corner block sealing (curtain wall ).
- Sealed unit bedding
- Expansion joints.
- Door and window manufacturing.
- Ventilation.
- Electrical insulation sealing
- Adhering auto and appliance trim including metal, fabric and fabric-backed plastics
- Bonding gaskets in heating and refrigeration units.
- Attaching screwless brackets or nameplates, and tacking plastic materials to metal.
- Sealing windows in oven doors and flues on gas appliances, flanged pipe joints, access doors.
- Formed-in-place gasketing for gear boxes, compressors, pumps.
- Sealing trailers, truck cabs.
- Bonding and sealing appliance parts.
- Anti-abrasion coating.
- Sealing marine cabins and windows.
- Filleting and caulking joints in sheet metal stacks, duct work and equipment housings

### **Directions for use**

#### **Surface Preparation**

ADSEAL CONSTRUCTION 4580 SERIES adhesive/sealant will bond to many clean surfaces without the aid of a primer. A sample test/evaluation should be made in order to determine the bond strength for each specific application. For difficult-to-bond substrates, use of a compatible primer is recommended with this product. Consult your sales representative for more information.

All surfaces should be thoroughly cleaned with a suitable solvent such as ADSOLV 99.9% IPA or ADSOLV 6002 toluene to remove dirt, oil and grease. The surface should then be wiped dry before applying the adhesive/sealant.

#### **Dispensing**

ADSEAL CONSTRUCTION 4580 SERIES silicone is a ready-to-use, one component material, available in caulking 304 ml cartridges, 400ml sausages, 600ml sausages and bulk containers. Air-operated dispensing guns may also be used with cartridges and sausages. When dispensed from a caulking cartridge, the sealant may be dispensed using a simple mechanical caulking gun or an air-operated gun. Note: When using air-powered cartridge caulking guns, do not exceed 45 psi.

Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units. Pumps specifically designed for one-component RTV silicone rubber have Teflon seals, packings and lined hoses to prevent moisture permeation and pump cure problems.

Specific details on dispensing systems and manufacturers are available on request.

#### **Application and Curing**

ADSEAL CONSTRUCTION 4580 SERIES adhesive/sealant's paste-like consistency makes it an easy material to work with. Tooling can be accomplished with a spatula or wooden paddle. A 5% solution of soap and water can be use for tooling.

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. In conditions of 75°F (24°C) and 50% relative humidity, a tack-free skin should form within 25 to 30 minutes of application. All tooling should be completed within the first 15 to 20 minutes, and is no longer practical once the tack-free skin has formed. Should masking tape be used to mask off an area, it too should be removed within the initial 15 to 20 minute period and prior to the formation of the tack-free skin.

## **ADSEAL CONSTRUCTION 4580 Series (continued)**

High temperatures and high humidity will accelerate the cure process; low temperatures and low humidity will conversely slow the cure rate.

A 3mm (1/8 inch) section of sealant will cure through in approximately 24 hours at 77°F (25°C) and 50% RH.

ADSEAL CONSTRUCTION 4580 SERIES can be applied at a temperature as low as -20°F (-29°C), taking than the surfaces are clean, dust free or not frozen.

### **Bond strength**

In addition to the effects of temperature and relative humidity, development of maximum bond strength will depend on joint configuration, degree of confinement, sealant thickness and substrate porosity. Normally, sufficient bond strength will develop in 12 to 24 hours to permit handling of parts. Minimum stress should be applied to the bonded joint until full adhesive strength is developed. Eventually, the adhesive strength of the bond will exceed the cohesive strength of the silicone rubber adhesive/sealant itself. Always allow maximum cure time available for best results.

### **Clean up and removal**

Before curing, solvent systems such as ADSOLV 99.9% IPA or ADSOLV 6002 toluene are most effective.

### **Precautions**

Uncured product contact irritates eyes. In case of contact with eyes, immediately flush eyes with water for 15 minutes. If irritation persists, get medical attention. Wearers of contact lenses should not handle lenses until all sealant has been cleaned from fingertips; sealant will transfer to lenses and cause severe eye irritation. To clean from the skin, wipe very thoroughly with a dry cloth or paper towel before washing with soap and water. Uncured product contact may irritate the skin.

### **Storage**

When stored in the original unopened containers in a dry location at temperatures less than 80°F (27°C), ADSEAL CONSTRUCTION 4580 SERIES offers a shelf life of up 12 months from the date of production.

To prevent curing of the unused portion of an opened container, reseal tightly.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

For Industrial Use Only.

### **IMPORTANT**

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## **ADSEAL STRUCTURAL 4940 Series RTV Structural silicone**

### **Description**

ADSEAL STRUCTURAL 4940 SERIES is a one-component product, thixotropic, nonflowable adhesive sealant that cures at room temperature and ambient humidity conditions, utilizing a low corrosive, oxime curing system.

ADSEAL STRUCTURAL 4940 SERIES may be used for many types of bonding and sealing applications including structural curtain walls manufacturing, architectural panels manufacturing, structural glazing, commercial glazing and FIP gasketing.

Due to its physical properties, it may be applied overhead or on sidewall joints and surfaces. It will adhere to glass, most types of wood, clean metals, silicone resins, ceramics, vulcanized silicone rubber, natural and synthetic fibers, as well as painted and many plastic surfaces.

With its oxime neutral curing system, ADSEAL STRUCTURAL 4940 SERIES can be used for general sealing as well as electrical insulation. It presents no offensive odor during curing and will not corrode metal. (Discoloration of copper-based metals may occur when hermetically sealed). In addition, the product adheres well on alkali materials such as masonry.

ADSEAL STRUCTURAL 4940 SERIES CANNOT BE PAINTED.

Due to ADSEAL STRUCTURAL 4940 SERIES silicone utilizing a moisture cure system, it must not be used in section depth greater than 13 mm (1/2 inch). For applications with section depths exceeding 13 mm (1/2 inch), two-component silicones are recommended.

### **Specifications**

ADSEAL STRUCTURAL 4940 SERIES meets the specification for CAN/ONGC 19.13-M87 and ASTM C920, type S, grade NS, class 50

ADSEAL STRUCTURAL 4940 SERIES have successfully passed a C5 wind load test according to ASTM E330

ADSEAL STRUCTURAL 4940 SERIES meets the requirements of "U.S. Green Building Council® LEED®-NC Green Building Rating System for New Construction & Major Renovations Version 2.2, EQ Credit 4.1 (Indoor Environmental Quality – Low Emitting Materials: Adhesives & Sealants).

### **Applications**

- Structural curtain walls and structural glazing
- Architectural Panel manufacturing
- Adhesive for trailer panels and truck boxes
- Sealed units assembly
- Solar panels

## ADSEAL STRUCTURAL 4940 Series (continued)

### Physical properties

Uncured	
Color	Black (4943) White (4942) Anodized aluminum (4948)
Viscosity	Thixotropic paste
Specific gravity at 20°C	1.34
VOC content	50 g/L
Extrusion rate (6.73 mm, 50 psi, 24°C),g/min	200 ±100
Mechanical	
Test according to ASTM after cure at 23°C (73°F) and 50% relative humidity	
Tack free time (ASTM C-679)	5-10 min
Curing time at 25°C (77°F), 50% RH	7-14 days
Full adhesion	14-21 days
Flow, sag or slump (ASTM C-639)	
- 4hours at 3°C (37°F)	0 %
- 4 hours at 50°C (120°F)	0 %
Hardness (ASTM D-2240, shore A)	37-43
Joint Movement Capability (ASTM C-719)	± 50%
Peel Strenght (ASTM C794)	34 lb/in
Tensile Adhesion strength (ASTM C-1135)	
- At 25% extension	88 lb/in <sup>2</sup>
- At 50% extension	105 lb/in <sup>2</sup>
- Tensile at break	168 psi
- Elongation at break	200 %
Weatherometer Test (ASTM G53) Tensile (ASTM C1135)	
- At 25% extension	70 lb/in <sup>2</sup>
- At 50% extension	80 lb/in <sup>2</sup>
- Tensile at break	91 psi
- Elongation at break	159 %
Staining (ASTM C-1248) (granite, marble, limestone, brick and concrete)	No staining
Temperature resistance	< 200°C (392°F)

### Directions for use

#### Surface Preparation

ADSEAL STRUCTURAL 4940 SERIES adhesive/sealant will bond to many clean surfaces without the aid of a primer. A sample test/evaluation should be made in order to determine the bond strength for each specific application. For difficult-to-bond substrates, use of a compatible primer is recommended with this product. Consult your sales representative for more information.

All surfaces should be thoroughly cleaned with a suitable solvent such as ADSOLV 99.9% IPA or ADSOLV 6002 toluene to remove dirt, oil and grease. The surface should then be wiped dry before applying the adhesive/sealant.

## **ADSEAL STRUCTURAL 4940 Series (continued)**

### **Dispensing**

ADSEAL STRUCTURAL 4940 SERIES silicone is a ready-to-use, one component material, available in caulking 304 ml cartridges, 400ml sausages, 600ml sausages and bulk containers.

Air-operated dispensing guns may also be used with cartridges and sausages. When dispensed from a caulking cartridge, the sealant may be dispensed using a simple mechanical caulking gun or an air-operated gun. Note: When using air-powered cartridge caulking guns, do not exceed 45 psi.

Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units. Pumps specifically designed for one-component RTV silicone rubber have Teflon seals, packings and lined hoses to prevent moisture permeation and pump cure problems.

Specific details on dispensing systems and manufacturers are available on request.

### **Application and Curing**

ADSEAL STRUCTURAL 4940 SERIES adhesive/sealant's paste-like consistency makes it an easy material to work with. Tooling can be accomplished with a spatula or wooden paddle. A 5% solution of soap and water can be used for tooling.

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. In conditions of 75°F (24°C) and 50% relative humidity, a tack-free skin should form within 5 to 10 minutes of application. All tooling should be completed within the first 5 to 10 minutes, and is no longer practical once the tack-free skin has formed. Should masking tape be used to mask off an area, it too should be removed within the initial 5 to 10 minute period and prior to the formation of the tack-free skin.

High temperatures and high humidity will accelerate the cure process; low temperatures and low humidity will conversely slow the cure rate.

A 3mm (1/8 inch) section of sealant will cure through in approximately 24 hours at 77°F (25°C) and 50% RH.

ADSEAL STRUCTURAL 4940 SERIES can be applied at a temperature as low as -20°F (-29°C), taking that the surfaces are clean, dust free or frozen.

### **Bond strength**

In addition to the effects of temperature and relative humidity, development of maximum bond strength will depend on joint configuration, degree of confinement, sealant thickness and substrate porosity. Normally, sufficient bond strength will develop in 12 to 24 hours to permit handling of parts. Minimum stress should be applied to the bonded joint until full adhesive strength is developed. Eventually, the adhesive strength of the bond will exceed the cohesive strength of the silicone rubber adhesive/sealant itself. Always allow maximum cure time available for best results.

### **Cleanup and removal**

Before curing, solvent systems such as ADSOLV 99.9% IPA or ADSOLV 6002 toluene are most effective.

### **Precautions**

These products are manufactured and sold for industrial use only.

Uncured product contact irritates eyes. In case of contact with eyes, immediately flush eyes with water for 15 minutes. If irritation persists, get medical attention. Wearers of contact lenses should not handle lenses until all sealant has been cleaned from fingertips; sealant will transfer to lenses and cause severe eye irritation. To clean from the skin, wipe very thoroughly with a dry cloth or paper towel before washing with soap and water. Uncured product contact may irritate the skin.

### **Storage**

When stored in the original unopened containers in a dry location at temperatures less than 77°F (25°C), ADSEAL STRUCTURAL 4940 SERIES offers a shelf life of up to 12 months from the date of production.

## **ADSEAL STRUCTURAL 4940 Series (continued)**

### **Precautions**

These products are manufactured and sold for industrial use only.

Uncured product contact irritates eyes. In case of contact with eyes, immediately flush eyes with water for 15 minutes. If irritation persists, get medical attention. Wearers of contact lenses should not handle lenses until all sealant has been cleaned from fingertips; sealant will transfer to lenses and cause severe eye irritation. To clean from the skin, wipe very thoroughly with a dry cloth or paper towel before washing with soap and water. Uncured product contact may irritate the skin.

### **Storage**

When stored in the original unopened containers in a dry location at temperatures less than 77°F (25°C), ADSEAL STRUCTURAL 4940 SERIES offers a shelf life of up 12 months from the date of production.

If you need additional information, do not hesitate to contact your technical representative.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

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### **IMPORTANT**

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## ADSIL 4800 Series General purpose silicone sealant

### Description

ADSIL 4800 SERIES is a one-component general purpose silicone, thixotropic, non-flowable adhesive sealant that cures rapidly at room temperature and ambient humidity conditions utilizing an acetoxyl curing system. It may be used for many types of bonding and sealing applications. Because it does not flow due to its own weight, this sealant can be applied overhead or on sidewall joints and surfaces without sagging, slumping or running off.

ADSIL 4800 SERIES has good resistance to weathering, vibration, moisture, ozone and extreme temperatures. It adheres to glass, aluminum, most painted metals, most types of wood, ceramic, mirror; natural and synthetic fiber.

For sealing and bonding on plastic surface we recommend ADSEAL 4550 SERIES.

ADSIL 4800 SERIES general purpose sealant can corrode or not adhere to copper, brass (and other copper-containing alloys), magnesium, zinc and galvanized metals (and other zincontaining alloys).

### **ADSIL 4800 SERIES CANNOT BE PAINTED.**

Due to ADSIL 4800 SERIES silicone utilizing a moisture cure system, it must not be used in section depth greater than 1/2 mm (1/2 inch). For applications with exceeding section depths, two-component silicones are recommended.

### Specifications

- When full cured and washed ADSIL 4800 SERIES general purpose sealant meets the requirements of FDA REGULATION NO. 21 CFR 177.2600 subject to end use.
- CFIA
- CGSB CAN19.13-M87
- Meets ASTM C920-11 specifications
- Federal specifications US TT-S-1543A and TT-S00230C type 2.

### Physical properties

Uncured	
Color	Translucent, white, black, aluminum (special colors available upon request)
Viscosity	Paste
Application temperature	-34°F to 140°F (-37°C to 60°C)
Tack free	15 à 20 minutes
Extrusion rate of silicon with a diameter of 4,6mm and a pressure of 50 psi	
Min (grams/min.)	100
Max (grams/min.)	400
Mechanical	
Hardness (ASTM D2240, Shore A)	15
Tensile strength (ASTM D412, psi)	111
Elongation,% (ASTM D412)	408
Tensile Strength at 100% elongation, psi (ASTM D412)	43
Tear Strength, lb/in. (ASTM D624, die C)	24
Specific Gravity	1.04
Service temperature	-72°F to 399°F (-58°C to + 204°C) Maximum intermittent: 482°F (+ 250°C)
VOC (translucent)	48g/L
VOC (colors)	37.38 g/L

## ADSIL 4800 Series (continued)

### Applications

- Sealing cold rooms
- Gasketing
- Sealing trailers, truck cabs.
- Aluminum windows and doors manufacturing
- Sealing appliance parts.
- Sealing marine cabins and windows.
- Sing bonding
- Mirror bonding

For a 304 mL cartridge, a 3/16 inch bead will cover 50 linear feet.

### Directions for use

#### Surface Preparation

ADSIL 4800 SERIES adhesive/sealant will bond to many clean surfaces without the aid of a primer. A sample test/evaluation should be made in order to determine the bond strength for each specific application. For difficult-to-bond substrates, use of a compatible primer is recommended. Consult your sales representative for more information.

All surfaces should be thoroughly cleaned with a suitable solvent such as ADSOLV 6003 IPA 99.9% or ADSOLV 6002 toluene to remove dirt, oil and grease. The surface should then be wiped dry before applying the adhesive/sealant.

#### Dispensing

ADSIL 4800 SERIES silicone is a ready-to-use, one component material available in caulking 304 ml cartridges, 400ml sausages, 600ml sausages and bulk containers. Air-operated dispensing guns may also be used with cartridges and sausages. When dispensed from a caulking cartridge, the sealant may be dispensed using a simple mechanical caulking gun or an air-operated gun.

Note: When using air-powered cartridge caulking guns, do not exceed 45 psi.

Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units. Pumps specifically designed for one-component RTV silicone rubber have Teflon seals, packings and lined hoses to prevent moisture permeation and pump cure problems.

Specific details on dispensing systems and manufacturers are available on request.

#### Application and Curing

ADSIL 4800 SERIES adhesive/sealant's paste-like consistency makes it an easy material to work with. Tooling can be accomplished with a spatula or wooden paddle. A 5% solution of soap and water can be used for tooling.

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. In conditions of 75°F (24°C) and 50% relative humidity, a tack-free skin should form within 15 to 20 minutes of application. All tooling should be completed within the first 15 to 20 minutes, and is no longer practical once the tack-free skin has formed. Should masking tape be used to mask off an area, it too should be removed within the initial 15 to 20 minute period and prior to the formation of the tack-free skin.

High temperatures and high humidity will accelerate the cure process; low temperatures and low humidity will conversely slow the cure rate.

A 3mm (1/8 inch) section of sealant will cure through in approximately 24 hours at 77°F (25°C) and 50% RH.

ADSIL 4800 SERIES can be applied at a temperature as low as -34°F (-37°C), taking that the surfaces are clean, dust free or not frozen.



## **ADSIL 4800 Series (continued)**

### **Bond strength**

In addition to the effects of temperature and relative humidity, development of maximum bond strength will depend on joint configuration, degree of confinement, sealant thickness and substrate porosity. Normally, sufficient bond strength will develop in 12 to 24 hours to permit handling of parts. Minimum stress should be applied to the bonded joint until full adhesive strength is developed. Eventually, the adhesive strength of the bond will exceed the cohesive strength of the silicone rubber adhesive/sealant itself. Always allow maximum cure time available for best results.

### **Cleanup and removal**

Before curing, solvent systems such as Adsolv 6003 IPA 99.9% or Adsolv 6002 toluene are most effective.

### **Precautions**

These products are manufactured and sold for industrial use only.

Uncured product contact irritates eyes. In case of contact with eyes, immediately flush eyes with water for 15 minutes. If irritation persists, get medical attention. Wearers of contact lenses should not handle lenses until all sealant has been cleaned from fingertips; sealant will transfer to lenses and cause severe eye irritation. To clean from the skin, wipe very thoroughly with a dry cloth or paper towel before washing with soap and water.

WARNING! Direct contact of uncured sealant can irritate eyes and may irritate skin.

Overexposure to vapor may irritate eyes, nose and throat.

KEEP OUT OF REACH OF CHILDREN.

### **Storage**

When stored in the original unopened containers in a dry location at temperatures less than 80°F (27°C), ADSIL 4800 SERIES offers a shelf life of up to 12 months from the date of production.

To prevent curing of the unused portion of an opened container, reseal tightly.

If you need additional information, do not hesitate to contact your technical representative.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

For Industrial Use Only.

### **IMPORTANT**

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## X-TRASIL 4710 Series Mildew resistant sealant

### Description

X-TRASIL 4710 SERIES is a one part silicone rubber sealant. It will resist mildew even when exposed to prolonged hot and humid environments. The sealant does not provide or maintain a nutrient surface for fungus. It effectively seals around bathtubs, shower stalls, wall fixtures, rimless sinks, kitchen and bathroom fixtures and may be used for ceramic tile grouting and bedding. For maintenance X-TRASIL 4710 SERIES sealant may be used outdoors as well as indoors.

Watertight bonds can be made with this sealant in combination with glass, ceramic, painted steel and aluminum. The sealant may be utilized on the job site or in the shop.

X-TRASIL 4710 SERIES sealant is not recommended for use where abrasion or physical abuse is encountered on or below grade. This sealant is not recommended for use in locations subject to continuous water immersion.

X-TRASIL 4710 SERIES should not be applied:

- To concrete, marble, limestone, lead or lead coated surfaces.
- To building materials which may bleed oils or solvents. These include, but are not limited to, impregnated wood and certain vulcanized rubber gaskets or tapes, or failed sealants and caulking compounds
- When silicone sealants are used in remedial work, all old sealant must be removed.
- In totally confined spaces, as the sealant requires atmospheric moisture for cure.
- To aquariums as fungicide leaching will occur.
- In totally confined spaces, as the sealant requires atmospheric moisture for cure.
- To surfaces with special or protective coatings, such as mirrors, without approval of the manufacturer of the article.
- Should not be utilized in food contact applications.

Due to X-TRASIL 4710 SERIES silicone utilizing a moisture cure system, it must not be used in section depth greater than 13 mm (1/2 inch). For applications with exceeding section depths, two-component silicones are recommended.

X-TRASIL 4710 SERIES meets the specification for CAN/CGSB 19.13-M87.

### Physical properties

Uncured	
Color	Translucent, white (other colors available upon request)
Viscosity	Paste
Application temperature	-37°C à 60°C
Tack free	12 à 20 minutes
Extrusion rate of silicone with a diameter of 4,6mm and a pressure of 50 psi	
Min (grams/min.)	100
Max (grams/min.)	400
Mechanical	
Hardness (ASTM D2240, Shore A)	15-25
Tensile strength (ASTM D412, psi)	350
Elongation,% (ASTM D412)	300
Peel strength, psi	20 (on ceramic tile)
Dynamic Movement Capability	+/-50%
Service temperature	-72°F to 399°F (-58°C to + 204°C)
Specific Gravity	1.04
Full cure	24 hours for a 1/8" bead
VOC (translucent)	50 g/L
VOC (colors)	49.35 g/L

## **X-TRASIL 4710 Series (continued)**

### **Applications**

- Washroom
- Bathtub, sink and shower
- Ceramic

FOR PLASTIC BATHTUB, SINK AND SHOWERS USE AFAST MK60095 PRIMER.

**X-TRASIL 4710 SERIES CANNOT BE PAINTED.**

### **Directions for use**

#### **Surface Preparation**

X-TRASIL 4710 SERIES adhesive/sealant will bond to many clean surfaces without the aid of a primer. A sample test/evaluation should be made in order to determine the bond strength for each specific application. For difficult-to-bond substrates, use of a compatible primer is recommended. Consult your sales representative for more information.

All surfaces should be thoroughly cleaned with a suitable solvent such as ADSOLV 6003 IPA 99.9% or ADSOLV 6002 toluene to remove dirt, oil and grease. The surface should then be wiped dry before applying the adhesive/sealant.

#### **Dispensing**

X-TRASIL 4710 SERIES silicone is a ready-to-use, one component material available in caulking 304 ml and bulk containers. Air-operated dispensing guns may also be used with cartridges. When dispensed from a caulking cartridge, the sealant may be dispensed using a simple mechanical caulking gun or an air-operated gun. Note: When using air-powered cartridge caulking guns, do not exceed 45 psi.

Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units. Pumps specifically designed for one-component RTV silicone rubber have Teflon seals, packings and lined hoses to prevent moisture permeation and pump cure problems.

Specific details on dispensing systems and manufacturers are available on request.

#### **Application and Curing**

X-TRASIL 4710 SERIES adhesive/sealant's paste-like consistency makes it an easy material to work with. Tooling can be accomplished with a spatula or wooden paddle. A 5% solution of soap and water can be used for tooling.

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. In conditions of 75°F (24°C) and 50% relative humidity, a tack-free skin should form within 12 to 20 minutes of application. All tooling should be completed within the first 12 to 20 minutes, and is no longer practical once the tack-free skin has formed. Should masking tape be used to mask off an area, it too should be removed within the initial 12 to 20 minute period and prior to the formation of the tack-free skin.

High temperatures and high humidity will accelerate the cure process; low temperatures and low humidity will conversely slow the cure rate.

A 3mm (1/8 inch) section of sealant will cure through in approximately 24 hours at 77°F (25°C) and 50% RH.

X-TRASIL 4710 SERIES can be applied at a temperature as low as -34°F (-37°C), taking that the surfaces are clean, dust free or not frozen.

#### **Bond strength**

In addition to the effects of temperature and relative humidity, development of maximum bond strength will depend on joint configuration, degree of confinement, sealant thickness and substrate porosity. Normally, sufficient bond strength will develop in 12 to 24 hours to permit handling of parts. Minimum stress should be applied to the bonded joint until full adhesive strength is developed. Eventually, the adhesive strength of the bond will exceed the cohesive strength of the silicone rubber adhesive/sealant itself. Always allow maximum cure time available for best results.

## **X-TRASIL 4710 Series (continued)**

### **Clean up and removal**

Before curing, solvent systems such as Adsolv 6003 IPA 99.9% or Adsolv 6002 toluene are most effective.

### **Precautions**

These products are manufactured and sold for industrial use only.

Uncured product contact irritates eyes. In case of contact with eyes, immediately flush eyes with water for 15 minutes. If irritation persists, get medical attention. Wearers of contact lenses should not handle lenses until all sealant has been cleaned from fingertips; sealant will transfer to lenses and cause severe eye irritation. To clean from the skin, wipe very thoroughly with a dry cloth or paper towel before washing with soap and water.

WARNING! Direct contact of uncured sealant can irritate eyes and may irritate skin.

Overexposure to vapor may irritate eyes, nose and throat.

KEEP OUT OF REACH OF CHILDREN.

### **Storage**

When stored in the original unopened containers in a dry location at temperatures less than 80°F (27°C), X-TRASIL 4710 SERIES offers a shelf life of up to 12 months from the date of production.

To prevent curing of the unused portion of an opened container, reseal tightly.

If you need additional information, do not hesitate to contact your technical representative.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

For Industrial Use Only.

### **IMPORTANT**

The information given and the recommendations made herein apply to our products alone and not combined with other products. This information is based on our research and on data from reliable sources and is believed to be accurate. No guaranty of accuracy is made. It is the purchaser's or the user's responsibility before using any product to verify this data under their own operating conditions and to determine whether the product is suitable for their purposes.

## ADCRYL 1090 Series Acrylic latex caulking

### Description

ADCRYL 1090 SERIES is an excellent all-purpose sealant for interior applications.

It is used to draughtproof windows, door frames, and for all moderate expansion fissures or joints. It may be used on all common construction materials including painted and unpainted wood, metal, ceramic tile, concrete, brick, glass, stucco and marble.

ADCRYL 1090 SERIES may be used in a variety of interior applications and is ready to use - no mixing required.

ADCRYL 1090 SERIES will not sag, is non-staining and cleans up easily with water.

Available in white and clear.

ADCRYL 1090 SERIES meets the specification for CAN/CGSB I9-GP-17M

### Physical properties

Specific Gravity	1.00 g/cc
Solids	60%
Hardness (Shore A)	20
UV + Ozone Resistance	Good
Paintability	Yes
pH	8.0-9.0
Peel strength (Glass)	Excellent
Shelf life	12 months following the date of production

### Interior uses

- Between frames and walls
- Around door and window frames
- Sealing joints between baseboard or trim and walls, ducts and pipes

### Directions for use

Make sure surface is clean and free from dust, soap, grease, flaking paint, loose grout, old sealant and moisture.

Cut nozzle to desired opening. Place cartridge in standard caulking gun.

Tooling time 60 minutes. Allow caulk to dry 2 hours before painting.

Remove excess material with a damp cloth.

After drying, excess material must be cut or scraped away. Clean hands and tools with soap and water.

### Handling and safety

Uncured product contact irritates eyes and skin. In case of eye contact, immediately flush with water for 15 minutes. If irritation persists, contact a physician.

Clean hands thoroughly after use and before handling contact lenses.

Use in well ventilated areas.

Keep out of reach of children.

Not for use on aquariums, food contact, stove pipes or fire places.

Avoid freezing.

## **ADCRYL 1090 Series (continued)**

### **Storage**

When stored in the original unopened containers in a dry location at temperatures less than 80°F (27°C), ADCRYL 1090 SERIES offers a shelf life of up 12 months from the date of production.

If you need additional information, do not hesitate to contact your technical representative.

Always test product on your particular application prior to use.

Please refer to Material Safety Data Sheet before use.

For Industrial Use Only

### **IMPORTANT**

The information given and the recommendations made herein apply to our products alone and not combined with other products. This information is based on our research and on data from reliable sources and is believed to be accurate. No guaranty of accuracy is made. It is the purchaser's or the user's responsibility before using any product to verify this data under their own operating conditions and to determine whether the product is suitable for their purposes.

## **LEED® Green Building Rating System**

### **Background on LEED®**

Following the formation of the U.S. Green Building Council (USGBC) in 1993, the organization's members quickly realized that the sustainable building industry needed a system to define and measure "green buildings." USGBC began to research existing green building metrics and rating systems. Less than a year after formation, the members acted on the initial findings by establishing a committee to focus solely on this topic. The composition of the committee was diverse; it included architects, real estate agents, a building owner, a lawyer, an environmentalist, and industry representatives. This cross section of people and professions added a richness and depth both to the process and to the ultimate product.

The first LEED Pilot Project Program, also referred to as LEED Version 1.0, was launched at the USGBC Membership Summit in August 1998. After extensive modifications, LEED Green Building Rating System Version 2.0 was released in March 2000, with LEED Version 2.1 following in 2002 and LEED Version 2.2 following in 2005. As LEED has evolved and matured, the program has undertaken new initiatives. In addition to a rating system specifically devoted to building operational and maintenance issues (LEED for Existing Buildings: Operations & Maintenance), LEED addresses the different project development and delivery processes that exist in the U.S. building design and construction market, through rating systems for specific building typologies, sectors, and project scopes: LEED for Core & Shell, LEED for New Construction, LEED for Schools, LEED for Neighbourhood Development, LEED for Retail, LEED for Healthcare, LEED for Homes, and LEED for Commercial Interiors. Project teams interact with the Green Building Certification Institute (GBCI) for project registration and certification. GBCI was established in 2008 as a separately incorporated entity with the support of the U.S. Green Building Council. GBCI administers credentialing and certification programs related to green building practice. These programs support the application of proven strategies for increasing and measuring the performance of buildings and communities as defined by industry systems such as LEED. The green building field is growing and changing daily. New technologies and products are being introduced into the marketplace, and innovative designs and practices are proving their effectiveness. The LEED rating systems and reference guides will evolve as well. Project teams must comply with the version of the rating system that is current at the time of their registration. USGBC will highlight new developments on its website on a continual basis at [www.usgbc.org](http://www.usgbc.org).

### **Features of LEED®**

The LEED Green Building Rating Systems are voluntary, consensus-based, and market-driven. Based on existing and proven technology, they evaluate environmental performance from a whole building perspective over a building's life cycle, providing a definitive standard for what constitutes a green building in design, construction, and operation. The LEED rating systems are designed for rating new and existing commercial, institutional, and residential buildings. They are based on accepted energy and environmental principles and strike a balance between known, established practices and emerging concepts. Each rating system is organized into 5 environmental categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality. An additional category, Innovation in Design, addresses sustainable building expertise as well as design measures not covered under the 5 environmental categories. Regional bonus points are another feature of LEED and acknowledge the importance of local conditions in determining best environmental design and construction practices.

## The LEED Credit Weightings

In LEED 2009, the allocation of points between credits is based on the potential environmental impacts and human benefits of each credit with respect to a set of impact categories. The impacts are defined as the environmental or human effect of the design, construction, operation, and maintenance of the building, such as greenhouse gas emissions, fossil fuel use, toxins and carcinogens, air and water pollutants, indoor environmental conditions. A combination of approaches, including energy modeling, life-cycle assessment, and transportation analysis, is used to quantify each type of impact. The resulting allocation of points among credits is called credit weighting. LEED 2009 uses the U.S. Environmental Protection Agency's TRACI environmental impact categories as the basis for weighting each credit. TRACI was developed to assist with impact evaluation for life-cycle assessment, industrial ecology, process design, and pollution prevention. LEED 2009 also takes into consideration the weightings developed by the National Institute of Standards and Technology (NIST)<sup>2</sup>; these compare impact categories with one another and assign a relative weight to each. Together, the 2 approaches provide a solid foundation for determining the point value of each credit in LEED 2009. The LEED 2009 credit weightings process is based on the following parameters, which maintain consistency and usability across rating systems:

- All LEED credits are worth a minimum of 1 point.
- All LEED credits are positive, whole numbers; there are no fractions or negative values.
- All LEED credits receive a single, static weight in each rating system; there are no individualized scorecards based on project location.
- All LEED rating systems have 100 base points; Innovation in Design (or Operations) and Regional Priority credits provide opportunities for up to 10 bonus points.

Given the above criteria, the LEED 2009 credit weightings process involves 3 steps:

1. A reference building is used to estimate the environmental impacts in 13 categories associated with a typical building pursuing LEED certification.
2. The relative importance of building impacts in each category are set to reflect values based on the NIST weightings
3. Data that quantify building impacts on environmental and human health are used to assign points to individual credits.

Each credit is allocated points based on the relative importance of the building-related impacts that it addresses. The result is a weighted average that combines building impacts and the relative value of the impact categories. Credits that most directly address the most important impacts are given the greatest weight, subject to the system design parameters described above. Credit weights also reflect a decision by LEED to recognize the market implications of point allocation. The result is a significant change in allocation of points compared with previous LEED rating systems. Overall, the changes increase the relative emphasis on the reduction of energy consumption and greenhouse gas emissions associated with building systems, transportation, the embodied energy of water, the embodied energy of materials, and where applicable, solid waste.

The details of the weightings process vary slightly among individual rating systems. For example, LEED for Existing Buildings: Operations & Maintenance includes credits related to solid waste management but LEED for New Construction does not. This results in a difference in the portion of the environmental footprint addressed by each rating system and the relative allocation of points. The weightings process for each rating system is fully documented in a weightings workbook. The credit weightings process will be re-evaluated over time to incorporate changes in values ascribed to different building impacts and building types, based on both market reality and evolving scientific knowledge related to buildings. A complete explanation of the LEED credit weightings system is available on the USGBC website, at [www.usgbc.org](http://www.usgbc.org).



## Regional Priority Credits

To provide incentive to address geographically specific environmental issues, USGBC regional councils and chapters have identified 6 credits per rating system that are of particular importance to specific areas. Each regional priority credit is worth an additional 1 point, and a total of 4 regional priority points may be earned. Upon project registration, LEED Online automatically determines a project's regional priority credits based on its zip code. If the project achieves more than 4 regional priority credits, the team can choose the credits for which these points will apply. The USGBC website also contains a searchable database of regional priority credits.

## Overview and Process

The LEED 2009 Green Building Rating System for New Construction and Major Renovations is a set of performance standards for certifying the design and construction of commercial or institutional buildings and high-rise residential buildings of all sizes, both public and private. The intent is to promote healthful, durable, affordable, and environmentally sound practices in building design and construction.

Prerequisites and credits in the LEED 2009 for New Construction and Major Renovations address 7 topics:

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy and Atmosphere (EA)
- Materials and Resources (MR) *LEED® Credit Contribution of Adfast Silicone Sealants and adhesives*
- Indoor Environmental Quality (IEQ) *LEED® Credit Contribution of Adfast Silicone Sealants and adhesives*
- Innovation in Design (ID)
- Regional Priority (RP)

LEED® Credit Contribution of Adfast Silicone Sealants and adhesives

Three credits for the LEED® rating system apply to our sealants and adhesives.

- Credit 5.1 of section MR
- Credit 4.1 of section IEQ
- Credit 4.2 of section IEQ.

For credit 5.1, our manufacturing site is located in Montreal, Canada postal code H4S 1G1.

For credit 4.1 Adfast Silicone Sealant and adhesives VOC values are below the applicable VOC limit of 250 g/l (grams/liter) established by the South Coast Air Quality Management District (SCAQMD) Rule # 1168 requirements and the Bay Area Air Quality Management District Regulation 9 (BAAQMD), Rule 51 requirements.

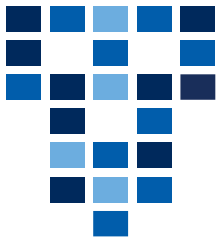
Here is a listing of several of the Adfast Silicone Sealants, Primers, Adhesives, foams and their VOC values. Please contact Adfast if a VOC value is needed for a product not listed below.

SEALANTS	V.O.C.	MR 5.1-5.2	IEQ 4.1
Adseal Structural 4940 series	< 50 gr/L		X
Adseal Construction 4580 series	< 67 gr/L		X
Adseal 4550 series	<49 gr/L		X
Adseal 4550SL series	< 45 gr/L		X
Adseal 4540 series	< 108 gr/L	X-X	X
Adseal 4549SL series	< 91 gr/L	X-X	X
Adseal 4549SSL series	< 93 gr/L	X-X	X
Adseal Structural 4940HV series	< 50 gr/L		X
Adseal 4600 series	< 59 gr/L		X
Adseal 4600SL series	< 52 gr/L		X
Adseal 4610 series	< 49 gr/L		X
Adthane 1800 series	< 77 gr/L		X
Adbond 1500 series	< 100 gr/L		X
Adbond 1500HV series	< 105 gr/L		X
Adbond 1920 series	< 19 gr/L		X
Flexsil 4300 series	< 139 gr/L	X-X	X
X-Trasil 4706-3 series	< 49 gr/L		X
X-Trasil 4710 series	< 50 gr/L		X
Adsil 4800 series	< 48 gr/L		X
Adbond 3022 series	< 2 gr/L		X
Adbond 3023A series	< 3 gr/L		X
Adbond 3055 series	< 20 gr/L	X-X	X
Adbond 3055LV series	< 2 gr/L	X-X	X
Adbond 3055HV series	< 2 gr/L	X-X	X
Adthane 5635-6K series	<10 gr/L		X
Adthane 5635 series	<10 gr/L		X
Adthane 5645 series	<11 gr/L		X
Butyl 1465	0 gr/L		X
Adcryn 1090	29 gr/L		X
Adseal Fire Stop 4707	72 gr/L		X
Adseal Fire Stop 4709SL	74 gr/L		X
Adseal Fire Stop 1007	35 gr/L		X
Adseal Smoke & Acoustik 1002	35 gr/L		X

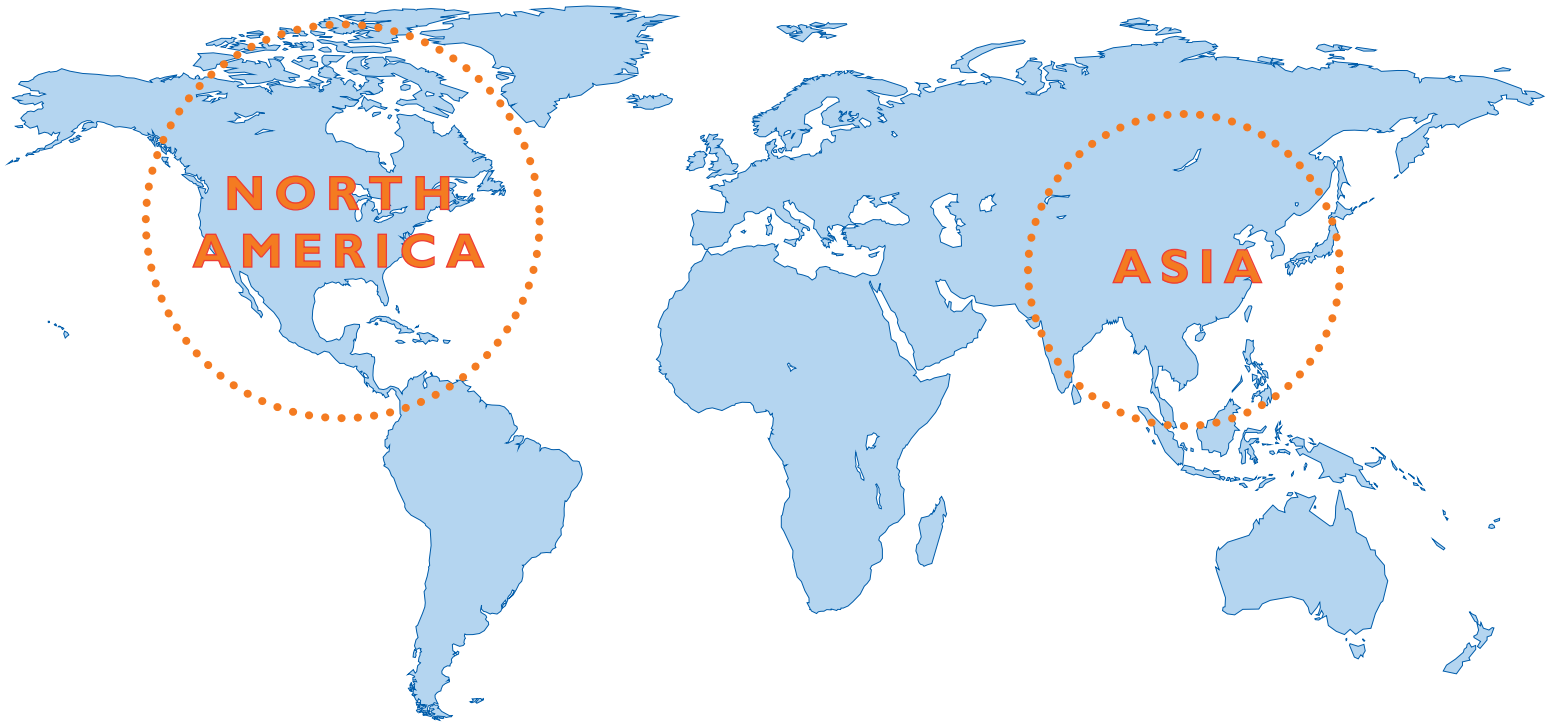
LEED 2009 for New Construction and Major Renovations certifications are awarded according to the following scale:

- Certified 40-49 points
- Silver 50-59 points
- Gold 60-79 points
- Platinum 80 points and above

GBCI will recognize buildings that achieve 1 of these rating levels with a formal letter of certification.



# ADFAST CORP.



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