Technical Data Sheet

SILASTIC™ SST-2650 Self Sealing Silicone

Description

Black, two-part 10:1 (by weight) mix ratio, non-sagging, self-sealing sealant

Sustainability Attribute:

Circulibrium
Designing for circularity with DOW

Uses / Applications

- Standard two-part dosing and mixing equipment
- Off ratio tolerance from 9.4:1 to 10.6:1 (w:w)
- Static or dynamic mixing
- Non-abrasive
- Rapid ambient temperature dispensing (ca. < 2 minutes / tire)
- Curing can be accelerated by heat (up to 80°C)
- Part B (catalyst) sensitive to moisture

Composition

- 100% silicone polymer based (PDMS)

Benefits

- Ambient temperature curing
- Paste like consistency, non-flowable
- Stable viscoelastic properties from low to high operating temperatures

Typical Properties

Specification Writers: These values are not intended for use in preparing specifications.

Test[1]	Property	Unit	Result
	One or two-part		Two
	Mixing ratio		10:1 by weight 9.3:1 by volume
CTM 0050	Viscosity part A	Pa.s	3000 (10^{-1} s^{-1}) 100 (100 s^{-1})
CTM 0050	Viscosity part B	Pa.s	60 (10^{-1} s^{-1}) 60 (100 s^{-1})
CTM 0050	Viscosity mixed	Pa.s	3000 (10^{-1} s^{-1}) 100 (100 s^{-1})

1. CTM: Corporate Test Method (copies of CTM's are available on request); ASTM: American Society for Testing and Materials

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Typical Properties (Cont.)

Test	Property	Unit	Result
	Specific gravity part A	$g.ml^{-1}$	1.05
	Specific gravity part B	$g.ml^{-1}$	0.98
	Color part A		Black
	Color part B		Transparent
CTM 0055	Pot-life[2]	Min	30
	Gel time[2]	Hours	12
	Cure time[2]	Days	7
	As cured after 28 days at 25°C, 50% rel. hum.		
ASTM D2240	Hardness	Shore 000	29
ASTM C1135	Tensile strength	Pa	1.75×10^4
ASTM C1135	Elongation at break	%	740
ASTM C1135	Young Modulus	Pa	2.5×10^3
CTM 1107	Gel hardness 20 mm thickness sample; TA-23 stainless steel probe, 1/2" diameter with 1/4" radius end; environmental conditions (23 + 2°C, 50 + 5% R.H)		
CTM 1107	F+ (cohesive force)[2]	g g g	35 @ 1 day 95 @ 7 days 125 @ 28 days

2. Can vary as function of environmental conditions (temperature, % relative humidity)

Description

SILASTIC™ SST-2650 Self-Sealing-Silicone sealant is designed for forming a self-sealing layer on the inner surface of tires, optimized with the right rheology to perform equally well when a nail is puncturing the tire and when it is leaving the tire because the period between both events can vary widely. During the puncture, the material rheology and adhesion properties are designed to follow the nail to a certain extent. When the nail is removed, the material has enough cohesion to hold pressure in the cavity left by the nail, while remaining flexible and elastic to move in and seal the hole. The balance of viscoelastic properties, cohesion and tackiness was optimized to prevent leakage of air from pressurized tires.

Dosing & Mixing

- Mixing ratio should be controlled to be ideally around 10:1 in weight, e.g., 90.9% part A and 9.1% part B. Considering the part A and part B densities the ideal volume ratio is about 9.3:1 in volume.
- The max of-ratio to be controlled by the machine must be [91.4% part A - 8.6%part B] or [90.4% part A - 9.6% part B].
- Mixing equipment should be setup to dose pastes (piston, gear, or constant flow pumps) through a static or dynamic mixer. Material has no abrasion and a 60 elements static mixer is recommended.

Dispensing

- The product is shear thinning and easy to dispense and apply. Once applied the product is non-sagging. The material can be left to cure in the position it was applied.
- Flow must be adjustable and constant without drop of pressure, from 0.5 cc/s to 20 cc/s.

Dispensing (Cont.)

- A complete dispensing cycle will typically be in the range of 1000 to 2000 cc of the mixed [A+B] material depending on the size of the tire to be coated.
- A pneumatic valve closing the dispensing nozzle at the end of the static mixer is a must as it interrupts the material flow instantly when stopping dispensing.

Curing

- Cure operates at ambient atmospheric temperature and relative humidity (below 80% rel. hum. preferably).
- Gel time is about 12 hours.
- Plateau properties reached after ca. 7 days; further hardening upon post-curing upon exposure to ambient conditions up to 28 days.

Processing

- Part A is non-reactive, paste like consistency, non-flowable.
- Part B contains the condensation curing catalyst and is very sensitive to exposure to moisture present in ambient atmospheric conditions: a skin is created at the interface with air after 5 min already. Therefore, the dosing system of part B and [A+B] need to be protected tightly against moisture and ambient air entrapment.
- Prior to interruption of the dosing and mixing equipment between 1 hour and a few days, part A can be used to flush the static or dynamic mixer to prevent the material to gel in the mixer, in the line or in the valves.
- In case of longer interruption, up to several days or weeks, we recommend a cleaning silicone fluid being used to purge and cleanout the equipment. You may contact your local Dow Silicones Elastomers local support for recommendations.
- The mixture [A+B] will slowly cure under ambient atmospheric conditions. Pot-life is about 30 minutes. After 30 minutes in the mixer there are lumps that may be observed in the product. Flushing the machine with fresh [A+B] mixture will easily and rapidly remove them.

Handling Precautions

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

Usable Life and Storage

Part A is about 6 months. Part B is about 12 months if container is not opened. A layer of cured product may be visible on the top liner of part B. Removing this cured layer prior to set the pail or drum of part B up on the dosing equipment is necessary. Storage of Part A and part B should be from 5–32°C and at relative humidity < 60%.

Packaging Information

- Part A: 200 kg drums
- Part B: 180 kg drums

Limitations

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

Health and Environmental Information

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

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

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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