

# LOCTITE MS 650 2C

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## PRODUCT DESCRIPTION

LOCTITE MS 650 2C provides the following product characteristics:

<b>Technology</b>	Silane-modified polymer
<b>Product Type</b>	Adhesive
<b>Components</b>	Two-component
<b>Cure</b>	Cure at ambient temperature (above 5°C) or cure at elevated temperatures
<b>Application</b>	Assembly
<b>Appearance</b>	Component A: black Component B: white
<b>Consistency</b>	Pasty, Thixotropic
<b>Odor</b>	Characteristic
<b>Mixing Ratio, by weight Part A: Part B</b>	10 : 1

LOCTITE MS 650 2C is a high reactive, sag-resistant 2-component adhesive based on Silane-modified polymers which cures at room temperature very fast to an elastic product. The material is free of solvents, isocyanates and silicones. After component A has been thoroughly mixed with component B the curing starts - independent of humidity - to form an elastic material. Already 9-12 min. after mixing the elastic adhesive has got a high green strength, after 20 min. a tensile shear strength of approx. 1MPa. In order to really make use of the advantage of elastic bonding, care should be taken of a sufficient dimensioning of the bonding joint. A minimum thickness is necessary so that the elastic adhesive is able to compensate the movements between the materials to be bonded under the influence of different temperatures during final use of the bonded parts.

### Application Areas:

LOCTITE MS 650 2C can be used for elastic bonding and sealing on many materials such as glass, metal, painted surfaces and plastics. It is used where the cure speed of a conventional one-component adhesive is too slow.

## TECHNICAL DATA

Component A, density, black, g/cm <sup>3</sup> :	approx. 1.4
Component B, density, white, g/cm <sup>3</sup> :	approx. 1.3
Component A, Skin formation time, min*:	approx. 5
Component B, Skin formation time, min*:	not applicable
<b>Mixture (Component A+B)</b>	
Density, g/cm <sup>3</sup> :	approx. 1.4
Sag resistance*:	no sagging (DIN profile 15mm)
Open time, min*:	approx. 4-5
Handling stability, min*:	approx. 9-12
Tensile strength (acc. to ISO 37), MPa*:	approx. 3
Shore-A-hardness (ISO 868, Durometer A)*:	approx. 55
Elongation at break (acc. to ISO 37, speed 200 mm/min),%:	>200
Tensile shear strength (acc. to DIN EN 1465), MPa*:	approx. 2
Layer thickness, mm:	2
Cross head speed, mm/min:	10
Substrates:	Al 99.5
UV resistance:	no changes signif.
UV source:	Osram Vitalux 300W, dry UV
Distance to the specimen, cm:	25
Damp heat test durability **: Test period, weeks:	given 2
Test period, hours:	336
In service temperature range, °C:	-40 to 90
Short exposure (up to 1 h), °C:	120
Application temperature, °C:	15 to 40
* DIN 50014 standard climate:	23°C, 50% relative humidity
**Damp heat conditions:	40°C, 100% relative humidity

## DIRECTIONS OF USE

### Preliminary Statement:

Prior to application it is necessary to read the **Material Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed.

### Pre-Treatment:

The substrates must be clean, dry, oil- and grease free. Depending on the surface it can be necessary to roughen the surface or to use a primer/adhesion promoter to provide best adhesion. . Corona or Plasma treatment improve the adhesion to many different materials. When manufacturing plastics, external release agents are often used; these agents must be accurately removed prior to starting bonding or sealing. Due to the different compositions of paints, especially powder paints and the large number of different substrates, application trials before use are necessary. For cleaning, Cleaner + Diluent Teroson VR 10, VR 30, VR 40 or Teroson SB 450 from the Henkel portfolio are suitable. When bonding and sealing PMMA, e.g. Plexiglas®, and polycarbonate, e.g. Makrolon® or Lexan®, under tension, stress corrosion cracking may occur. Application trials before use are necessary. There is no adhesion to polyethylene, polypropylene and PTFE (e.g. Teflon®). Substrates not mentioned above should be subject to trials.

### General remarks:

Due to the rapid curing after the expiry of the pot life, the mixing equipment must be cleaned in time. Thereby, it must be remembered that the pot life depends on the temperature: a higher temperature accelerates the chemical reaction, whereas a reduction in temperature will retard it. The actual processing time depends on the technical conditions, the mixing equipment and the temperature. For component A itself, the atmospheric humidity is a decisive factor.

### Application:

The material is applied using a hand-controlled applicator pistol or a stationary automatic valve. For more lengthy interruptions (for example overnight breaks) the pressure in the system should be dropped to zero. On request Henkel will provide information on manufacturers of such types of processing systems.

LOCTITE MS 650 2C is applied with a 2-component system. For best application results, the use of volume controlled dispenser is necessary. The selection of a suitable dosing system is depending on specific production process and requires preliminary dispensing tests.

All the equipment including hoses and pipes must be protected from atmospheric humidity.

### Curing:

LOCTITE MS 650 2C can be cured between 5° C and 40° C. Higher temperatures reduce the curing time, but at the same time a reduction of the processing time (pot life, open time), must be considered.

During setting, care must be taken that sufficient pressure is exerted on the mating parts to hold them in place, i.e. to ensure that the parts are kept in contact with the adhesive over their entire bonding surface.

### Cleaning:

For cleaning application equipment contaminated with uncured LOCTITE MS 650 2C we recommend the use of cleaners + diluents Teroson VR 10, VR 30, VR 40.

### Storage:

Frost-Sensitive	No
Recommended storage temperature, °C	10 to 15
Shelf-life (in unopened original packaging), 12 months	



## ADDITIONAL INFORMATION

### Disclaimer:

#### Note:

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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### Reference 1.0