

CAF[®] 530

High Performance Assembly and Protection

Description

CAF 530 is a one component silicone elastomer curing at Room Temperature as soon as the product comes into contact with atmospheric moisture:

- Alcohol type, neutral
- Non flowing, thixotropic
- White, black and grey
- Self-Adhesive (primer-less)

Examples of applications

CAF 530 has been specially developed for professional customers. It is mainly attended as a flexible bonding and sealing agent between different types of materials substrate subject to thermal strain, as glass, metal or plastic with high thermal stability:

- Maintenance and servicing in general industry.
- Sealing & Bonding of metallic components.
- Sealing & Bonding of plastic engineering components.

CAF 530 is specially used for applications where high performance primer-less adhesion and/or neutrality is required, such as:

- Electrical & Electronic
- Bonding of headlamps
- Solar panels

Its chemical neutrality and bonding performances in hot and wet environment make **CAF 530** the ideal protective product.

Advantages

CAF 530 is a room temperature neutral cure elastomer used for applications which need neutrality guaranteeing no oxidation with metals principally used in electronic like copper.

- Odourless, it is particularly well accepted in the workstation environment.
- Outstanding adhesion on many substrates.
- Good heat stability (-60°C to 185°C).
- Good mechanical properties.

Characteristics**1. Characteristics of the non cured product**

Properties	CAF 530
Appearance	Non flowing paste
Odour	Alcoxy
Colour	White, black & grey
Flowability (norm BOEING S7502, NM459, approx.)	< 2 mm
Specific gravity (g/cm ³ , at 25°C, approx.)	1.3
Extrusion (3mm, 3bars, norm 495A, average)	130

Characteristics (Suite)

2. Polymerization

CAF 530 starts curing as soon as the product comes into contact with atmospheric moisture.

The curing rate increases with both temperature and hygrometry.

Properties	CAF 530
Skin Formation Time (min, approx.)	10-15
Tack Free Time (min, approx.)	40
Time required to cure 2 mm (hours, approx)	8
Cured thickness after 24 hours (mm, approx)	3.5

Temperature 23°C, relative humidity 50%

3. Characteristics of the cured product

On 2 mm thick film, after 7 days curing at 23°C 50%RH

Properties	CAF 530
Shore A Hardness (Standards ISO R 868, NM 471, ASTM D 2240 BS903 Part A7, NF T 46003, DIN 53505, approx.)	34
Modulus at 100% Elongation (Standards ISO R37 (H2), DIN 53504, ASTM D 412 BS 903 Part A2, NF T 46002 (H2), NM 470, MPa)	0.9
Tensile Strength (Standards ISO R37 (H2), DIN 53504, ASTM D 412 BS 903 Part A2, NF T 46002 (H2), NM 470, MPa.)	3.5
Elongation at break (Standards ISO R37 (H2), DIN 53504, ASTM D 412 BS 903 Part A2, NF T 46002 (H2), NM 470, %.)	450
Tear Strength (Standards ASTM D 624 Specimen A, NM 492, KN/m.)	15

4. Thermal properties on 2 mm thick film

Properties	Service Temperatures
Lower usage temperature limit (brittle point, °C)	- 60
Upper usage temperature limit in continuous (1000 hours, maximum Temperature, °C)	+ 150
Upper usage temperature limit in peak (72 hours, maximum Temperature, °C)	+ 185

Note: Determined by measuring the mechanical properties and Shore A Hardness before and after treatment. These values aren't absolute limits; they represent the range within which variations in mechanical properties are not modified by more than 50%. Furthermore, for peak use, periods of exposure shorter than 72h, allow higher maximum temperatures.

Characteristics (cont')

5. Adhesion properties

Shear strength on 1 mm thick joint, after 14 days curing at 23°C, 50% RH, standard NM748

Substrates	Shear strength
Glass (MPa, approx.)	1.3
Alu AG3 (MPa, approx.)	1.2
Stainless Steel/Glass (MPa, approx.)	1.5
PA 6.6, 30% fiber glass (MPa, approx.)	1.3
Polycarbonate, ABS, PBT, Epoxy-PES (MPa, approx.)	1.2
Type of failure	100% Cohesive

CAF 530 gives primerless adhesion on numerous other substrates such as: enamel, painted steels and iron cast with 100% cohesive failure.

5.1 Adhesion on PV substrates

As CAF 530 is recommended for bonding of the junction box to the back sheet of the solar photovoltaic module, we have performed ageing test, like the damp heat test (1000h, 85°C & 85% RH) according to IEC 61215 on several assemblies and measure by lap shear test the shear strength and cohesive failure:

Substrates	Initial	1000 h, 85°C, 85% RH
PVF	1.20 MPa, 85%	1.08 MPa, 90%
PVDF/PET	1.10 MPa, 90%	1.05 MPa, 90%

6. Dielectric properties

Properties	CAF 530
Dielectric strength, kV/mm (Standard IEC 60 243-1)	24
Dielectric constant at 1 MHz (Standard IEC 60 250)	3.4
Power factor at 1 MHz (Standard IEC 60 250)	6.10 ⁻³
Volume resistivity, Ω.cm (Standard IEC 60 093)	4.9.10 ¹³

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Processing

Processing of **CAF 530** is particularly easy, since the product is delivered ready to use. Application can be carried out either manually or using robotic application equipment.

CAF 530 is applied to one of the two joint substrates and assembled before the product has formed a skin.

It is recommended to apply **CAF 530** onto clean & dry surfaces and not to exert any strain on the assembly straight away.

Packaging

CAF 530 is available in:

- 310 ml cartridges on pallets of 1200 units.
- 250 kg drums on pallets of 4 units.
- 25 kg pails on pallets of 10 units.

Storage and shelf life

When stored in its original unopened packaging, at a temperature of between +2°C and +30°C, the **CAF 530** may be stored for up to 12 months from the date of manufacture clearly marked on the packaging.

Beyond this date, Bluestar Silicones no longer guarantees that the product meets the sales specifications.

Safety

Please consult the Safety Data Sheet of **CAF 530**.

Visit our website www.bluestarsilicones.com

EUROPE

Bluestar Silicones France
 21 Avenue Georges Pompidou
 F69486 Lyon Cedex 03
 FRANCE
 Tel. (33) 4 72 13 19 00
 Fax (33) 4 72 13 19 88

NORTH AMERICA

Bluestar Silicones USA
 2 Tower Center Boulevard
 Suite 1601
 East Brunswick, NJ 08816-1100
 United States
 Tel. (1) 732 227-2060
 Fax. (1) 732 249-7000

LATIN AMERICA

Bluestar Silicones Brazil Ltda.
 Av. Maria Coelho Aguiar, 215
 Bloco G – 1ª andar
 05804-902-Sao Paulo – SP-
 Brazil
 Tel. (55) 11 37477887

ASIA PACIFIC

Bluestar Silicones Hong Kong
 Trading Co. Ltd
 29th Floor, 88 Hing Fat Street
 Causeway Bay
 Hong Kong
 Tel. (852) 3106 8200
 Fax (852) 2979 0241

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