merz+benteli ag
more than bonding

Merbenit PC200

Advantages at a glance:

- Very low emissions
- 100% silicone-free
- Without addition of phthalates
- Without addition of solvents, isocyanates and silicones
- Very fast strength build-up
- Very good temperature resistance
- Can resist temperatures of up to 240 °C for short periods
- High final bond strength

Elastic SMP-based adhesives offer a maximum short-term heat resistance of up to approx. 200 °C and quickly become damaged when continuously exposed to high temperatures. They rapidly reach their limits during special processes such as powder coating/thermo-lacquering or in applications which are subject to an increased temperature load.

To meet these demanding requirements, you need a specialist product that offers significantly greater temperature resistance.

New Merbenit PC200 is the inimitable product for you. This permanently elastic, sealing adhesive is durable up to 240 °C and boasts additional properties that offer significant advantages during processing and the manufacturing process.

Simplified bonding process

Merbenit PC200 has a very broad adhesion range. In many cases the complex pre-treatment of the substrate can be simplified and reduced. This saves time as well as resources and, in an ideal scenario, also reduces the need for solvent-based products.

The adhesive is very low in emissions and complies with EMICODE EC1Plus and Eurofins IAC Gold. This means that you do not need to take any elaborate precautions regarding workplace safety and workers are not subjected to any unnecessary risk.

Merbenit PC200 only requires standard equipment. It does not have a high viscosity, so it can be applied easily and efficiently using a manual caulking gun.

Ideally, the adhesive thickness should be 1–5 mm, which allows for any tolerances of the components. The bonded parts may be moved and re-aligned during the application process.

Strength build-up

One of Merbenit PC200's unique properties is its rapid strength build-up. Bonded components can quickly be handled and processed further. This reduces processing times and optimises workflows.
Merbenit PC200 is the quickest single-component product in our standard range and achieves a shear strength of approx. 800 g/cm2 after 60 minutes.

This rapid reaction time makes Merbenit PC200 a viable alternative to 2-part applications.

Temperature resistance

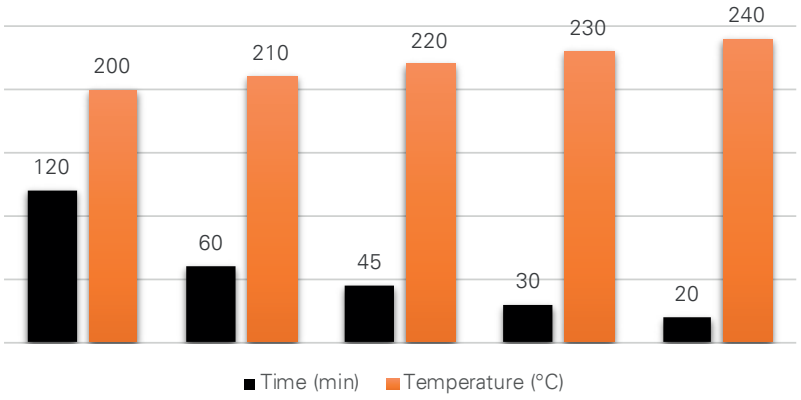
In merz+benteli AG's standard SMP product range, Merbenit PC200 is by far the most stable when it comes to resisting the effects of temperature. Please note that the material must be fully cured before it is subjected to the temperature load. Otherwise, bubbles may form or, at worst, the material could be completely destroyed.

In lab tests, the product's resistance was as follows:

Shear strength in line with DIN EN 1465
Test specimen: Anodised aluminium
Adhesive thickness: 1.5 mm, adhesive surface 25 mm x 12.5 mm

The test specimens were stored for 9 days in normal temperature conditions (+23 °C/50% rh, hereafter NTC) until the adhesive was fully cured.
The temperature load was applied via a muffle furnace.

The diagram shows how long a test specimen could withstand the temperatures without its strength deviating substantially from the reference value.



Please note: At a temperature load of ≥ 220 °C, slight damage was detected at the edge.

The product withstood the following loads with no visible damage:
30 minutes at +220 °C
15 minutes at +230°C
10 minutes at +240°C

Shear strength in line with DIN EN 53504
Test specimen: S2 test bars
Thickness of the test specimens: approx. 2.5 mm

The test specimens were stored for 7 days in normal temperature conditions (+23 °C/50% rh, hereafter NTC) until the adhesive was fully cured.
The temperature load was applied via a drying oven.

The diagram shows how long the test specimens could withstand the temperatures without properties such as strength and elongation at break deviating substantially from the reference values.

Temperature (°C)	Time (d)					
	14	28	70	105	140	175
140						
120						
90						
23						

Please note:

The stability of the adhesive depends on various factors.
Thinner layers are destroyed by the effects of heat more quickly than thicker layers. It should not be applied to very narrow joints (i.e. tapering to a thickness of 0 mm). There is always the risk with such joints that the thinnest layers will be damaged when subjected to the temperature load.

The surface of the adhesive must be clean before it is subjected to the effects of high temperature. Soiling or even traces of cleaning products can affect the surface of the adhesive.

The longer the exposure time and the higher the temperature, the sooner the surface of the adhesive will be affected. This initially manifests itself through increased adhesiveness. The adhesive may disintegrate if exposed to excessive load.
Due to the large number of variables, we recommend that you carry out sufficient pretests.

Merbenit PC200 is compatible with paints and is 100% silicone-free.
However, for coating processes, we recommend that you carry out pretests to determine the adhesion and compatibility of the coating with the adhesive.

Summary

Merbenit PC200 offers a whole host of advantages.
It provides a reliable alternative for simplifying and accelerating the bonding process while remaining very low in emissions.
Additionally, thanks to its high temperature resistance, it can be used for all applications involving higher temperatures. The product is ideal for both short-term exposure to loads, such as during powder coating/thermolacquering, and for recurring temperature peaks, e.g. in machines or devices that require the heat produced during operation to be offset.