

July, 2015

APM Unoflex 100214

Description	
APM number:	100214
System:	1-component adhesive / sealing compound
Colour:	black
Viscosity:	stable / thixotropic
Solid bodies:	100% / solvent-free
Skin formation:	15 minutes
Temperature range:	-40°C to +90°C, dense up to 120°C

Application / specifications	
Bonding plastic parts to metals	
Sealing joints in automotive and process plant engineering	
Device sealing and display bonding	
High elasticity seals	
Damping vibrating elements	
Directive 2011/65/EC:	RoHS compatible
EC No. 1907/2006:	compliant with REACH

Unoflex 100214 is a flexible MS polymer adhesive and sealant with good adhesion and permanently elastic properties. The sealant is solvent-free and extremely weather-resistant. Typically Unoflex 100214 is used for bonding displays in devices or for sealing covers. A thin glue line of 0.2 to 0.8 mm is typical. It can be enlarged to several mm due to its stable properties. The glue line is selected depending on the size of the parts to be sealed, the temperature range of the application and the difference in thermal expansion. Unoflex 100214 is frequently used to seal plastic parts or glass displays in the machine tools industry or electronic devices. The sealant produces excellent results for sealing a wide variety of materials, such as glass, ceramics, metals and plastics.

Properties of fluid adhesive	
Chemical base:	MS polymer
Colour:	black
Consistency (25°C):	stable
Density (25°C):	1.45 g/cm ³
Shrinkage:	< 3%
Processing temperature:	+5°C to +40°C

Surface pretreatment / cleaning

The surfaces to be bonded must be dry and free from dust, oil, separating agents and other impurities. The selected type of surface treatment depends on the requirements profile (cleanliness, mechanical strength, ageing resistance). Mechanical pretreatment such as grinding or sand-blasting results in improved adhesion, especially on metallic and in many cases non-metallic surfaces. It is best to clean

glass surfaces using the aqueous ultrasound cleaning method at raised temperature. Clean metallic surfaces with aqueous cleaners or clean solvents.

For these materials and in particular plastics, surface pretreatment using oxygen plasma has proven successful. Plasma treatment dries the surface and improves wettability. This achieves good adhesion of the adhesive. With plastics, the surface is also chemically modified. With poor adhesive plastics this produces an adhesive surface. Primers are no replacement for surface pretreatment. Adhesion and ageing resistance can also be significantly improved by using primers.

Applying the adhesive

Unoflex 100214 is a single-component, moisture-curing adhesive and is therefore easy to process. The ideal processing temperature is between 10°C and 30°C. Viscosity reduces at high temperatures. If necessary Unoflex 100214 can be processed between +5°C and +40°C. The skin building time is dependent on temperature and relative air humidity during the application. The adhesive can be easily applied from the cartridge using a dosing device. It can also be applied by spatula. A uniform adhesive thickness can be ensured by a specific bond geometry or by inserting spacers, e.g. glass fibres or double-sided adhesive tape.

Unoflex 100214 cures at air humidity at room temperature. The parts are placed together and prevented from slipping during curing by attaching clamps or fixing devices. Unoflex 100214 is paintable and can also be painted wet-on-wet.

Properties of cured adhesive

Colour:	black
Completely cured after 24 h:	> 2 mm at 20°C/50% air humidity
	after 48 h: > 3 mm at 20°C/50% air humidity
Thermal stability:	-40°C / +90°C
Shore A (25°C):	45
Density (25°C):	1.46 g/cm ³
Modulus of elasticity:	1.0 N/mm ²
Tensile strength:	2.3 N/mm ²
Elongation at rupture:	470%
Chem. resistance:	water, aliphatic hydrocarbons
	good weather resistance

Cleaning the adhesive

Residue from non-cured adhesive on the substrates and processing equipment can be removed or cleaned using a solvent such as isopropanol or acetone. Organic solvents may lead to component destruction or stress cracking in plastics. For this reason, avoid use of aggressive solvents such as acetone, ketones and esthers. Comply with the official safety regulations when handling combustible solvents. Cured adhesive can only be removed mechanically.

Ageing resistance of adhesive bonds

The typical application temperature range of Unoflex 100214 is from -40°C to +90°C. Adhesive bonds are very age resistant within this temperature range. The cured adhesive demonstrates excellent temperature stability, humidity ageing resistance and solvent resistance. After curing, Unoflex 100214 can be exposed to high temperatures for short periods of time. In painting tests at +180°C and for 20 minutes, the polymer showed no signs of destruction.

Compliance

Unoflex 100214 and all its constituents comply with the requirements of the RoHS Directive and REACH regulations. Always comply with the safety data sheet when handling the adhesive.

Safety instructions

Avoid contact with skin and eyes. If adhesive comes into contact with the skin, do not use solvents to remove. Instead wash the affected area (hands) with warm water and soap and then dry. Liquid adhesive irritates on contact with the eyes and may lead to permanent eye damage. Before use, please observe the instructions in the safety data sheet.

Storage

The adhesive has the best shelf life at temperatures between 15 °C and 25°C. The adhesive shelf life in 300 cm³ cartridges is at least 12 months under these conditions. The shelf life in 30 cm³ / 55 cm³ cartridges shortens to min. 6 months due to its sensitivity to humidity. Lower temperatures cause a temporary higher viscosity.

Procurement

The adhesive is available in standard cartridges of 10 cm³, 30 cm³ and 55 cm³ or in larger cartridges at the customer's request.

Disposal

The liquid adhesive must be disposed of as hazardous waste in the same way as synthetic resin or paint components. Cured adhesive is disposed of as hazardous waste in the same way as thermosetting plastics depending on local legal requirements or as domestic waste.

The specifications in this data sheet are based on meticulous tests and our previous experience in everyday practice. They are non-binding instructions, in the same way as our application advisories are also non-binding, whether verbal, in writing or by trials since we cannot accept any liability due to the wide variety of possible influences during processing and application. APM Technica AG disclaims all other explicit or implicit warranties, conditions and terms, be they of real or legal nature, including those which refer to usual market quality, their suitability for a particular use, satisfactory quality or observance of third-party trademarks. APM Technica excludes all liability to the extent permitted by law – whether arising from contract, quasi contract or tort (including negligence) – for direct, indirect and consequential damages, punitive damages awarded by court, loss of business of all kinds, loss of information or data or any other financial losses which may result from the sale, installation, maintenance, use, performance, failure or interruption of operation of the product or in connection therewith, even if we were informed of the possibility of occurrence of such damages. Data and other specifications concerning the nature and suitability of our products are non-binding general conditions and specifically represent no guarantee of certain characteristics. We advise you to perform your own adequate tests to determine the suitability of our products for your specific application. The user is himself responsible for defining the suitability of production methods mentioned in the technical data sheet for his purposes and for taking precautionary measures which are suitable to protect assets and persons from any danger which may occur during the handling and usage of these products. In all other cases our General Terms and Conditions of Business shall apply.