Agomet® C 550

Fast curing one component adhesive for bonding of metals,rigid plastics and elastomers

Base: Cyanoacrylate ester

Properties

Agomet C 550 is a fast curing, low viscous cyanoacrylate adhesive which hardens under the catalytic influence of the moisture present on the surfaces to be bonded. This process takes place very rapidly, within seconds to minutes. During setting, a light contact pressure should be applied to the parts being bonded. This elastic, standard cyanoacrylate adhesive is used preferably to produce non-ageing plastic and elastomer bonds.

Bonds produced with Agomet C 550 are characterized by high tensile shear strengths. Resistance to temperature and chemicals is sufficient for most fields of application.

Bondable Materials

Metals, e.g. iron, steel, aluminium and its alloys, non-ferrous metals.
Rigid PVC, polyamide, polycarbonate, polymethylmethacrylate, cellulose acetate, ABS, polyolefines, PFTE, and other *thermoplastics. Duroplastics,* e.g. aminoplastics, phenoplastics, GFK (FRP). *Elastomers,* e.g. nitril rubber (NBR), chloroprene rubber (CR), butadiene-styrene rubber (SBR), ethylene-propylene-terpolymer rubber (EPDM, APTK, EPTR), and others.
Porcelain, ceramics, and others.

Viscosity

approximately 20 mPa.s.

Processing

Pretreatment

All surfaces to be bonded must be free of contaminants and, most important, free of grease and dust. A mechanical roughening is advisable. Elastomers can be cleaned with acetone.

The highest strength values with metals are developed after special pickling processes. With some plastics as well, it is advisable to employ chemical pretreatment methods such as those described, for example, in VDI guidelines 3821.

Bonding

Agomet C 550 is applied in drops or beads to one of the parts to be bonded. The thickness of this layer of adhesive should not exceed 0.2 mm.

Immediately after the film of adhesive is spread, the second part is joined and clamped. After just a few seconds, the adhesive starts to set. The total curing time depends on humidity as well as on the chemical nature of the surfaces of the bonded parts: While surfaces with an acid reaction delay curing, surfaces with an alkaline reaction accelerate it. The thicker the layer of adhesive, the less complete is the curing reaction.

Influence of moisture

Atmospheric moisture has a catalytic effect on the setting of adhesives. Specifically, the higher the relative humidity of the air during the bonding process, the faster the curing takes place. Most favourable is a relative air humidity of 40 - 70%. While an air humidity level of under 30 % may extremely delay the setting in some cases, a relative humidity over 80 % can result in shock setting, causing stresses to develop in the bonded joint which greatly decrease the joint strength.

Setting times

Due to the extremely rapid setting of the cyanoacrylate, such high initial values are attained within just a few seconds that the bonded parts can be processed further or transported practically immediately. Complete setting of the bonded joint is reached after 24 hours.

At 20 °C and a 65 % air humidity, the following setting times can be assumed:

Metal	**Plastics**	**Elastomers**
60 - 120 seconds	10 - 60 seconds	3 - 10 seconds

Bonding Performance

Strength values

Plastics — *Tensile shear strength*

Phenoplastic, aminoplastic, polycarbonate, rigid PVC, polystyrene, polymethylmethacrylate, cellulose acetate, GFK (FRP): ***4 - 6 N/mm²*** *(material rupture)*

Polyethylene, polypropylene, polytetrafluor ethylene, polyacetal, polyamide: ***1.5 - 3.5 N/mm²***

Bonded according to DIN 53 283
Test material 100 x 25 x 1,5 mm, bonded area 300 mm², testing rate 10 mm/min.

Elastomers — *Longitudinal tensile strength of butt joint*

Nitrile, chloroprene-, styrene-butadiene rubber
- after 36 h of storage at 20°C and 65% relative humidity: ***11 N/mm²***
- after 7 days at 50°C and 24 h at room temperature.: ***10 N/mm²***

Ethylene-propylene-terpolymer-, isoprene-isobutylene rubber
- after 36 h of storage at 20°C and 65% relative humidity: ***3 - 6 N/mm²***
- after 7 days at 50°C and 24 h at room temperature: ***2 - 3 N/mm²***

Bonded according to DIN 53 504
Test material standard ring I, vertical cut, then butt joint bonded

Metals — *Tensile shear strength*

Aluminium AlCuMg2 pl (Bondur F 44): ***appr. 26 N/mm²***

Bonded according to DIN 53 283
Test material 100 x 25 x 1,6 mm, bonded area: 300 mm², testing rate 15 mm/min.

Temperature resistance

Joints bonded with Agomet C 550 are strongest at temperatures of 20 - 30°C. The adhesive is resistant to continuous temperatures between -30° and +70°C. Sufficient strength values are also retained up to a continuous temperature of 100°C. Above 120°C, however, the strength decreases rapidly.

Resistance to chemicals

Agomet C 550 adhesives are relatively resistant to alcohols, aromatic substances, and trichloro- ethylene. Resistance to aliphatic hydrocarbons, esters, as well as to concentrated acids and alkalies is distinctly lower. Agomet C 550 is not recommended for bonding of joints which will be continuously exposed to water.

Advice

Safety Instructions

Many years of practical experience have shown that no damage to health is expected when working with Agomet C 550. Due to the characteristic odour of these adhesives, however, it is recommended to ventilate the working rooms sufficiently.

Since Agomet C 550 also adheres to the skin, contact of hands with adhesive should be avoided. Hands should be cleaned with soapy water or hand washing paste and pumice and then treated with a high-quality skin cream.

Drops of adhesive splashed into the eyes during the work will set immediately due to the eye's lacrimation. As a result, a brief burning pain is experienced during the first minutes. The eye must be washed immediately with large amounts of water and a doctor must be consulted without delay.

Tool cleaning	To remove not fully set adhesive from the working equipment, we recommend the use of ethyl acetate or acetone. Agomet C 550 that has set can be removed either mechanically using a grinder or emery cloth, or chemically by boiling in sodium hydroxide solution followed by washing off with water and alcohol.
Releasing bonded joints	Cured bonds can be released by storing them briefly in dimethylformamide (toxic) or by slowly swelling in ethyl acetate. As well, the bonded joints can be rapidly released when heated to temperatures of 180 - 250°C.
Storage Stability	Agomet C 550 should be stored in a dry and cool location and protected against sunlight. At room temperature, the adhesive can be stored in the original, unopened container for 6 months. Larger supplies should be stored at -20°C and brought to room temperature before processing. The frozen product can be stored for one year.

Handling Precautions

Caution

Our products are generally quite harmless to handle provided that certain precautions normally taken when handling chemicals are observed. The uncured materials must not, for instance, be allowed to come into contact with foodstuffs or food utensils, and measures should be taken to prevent the uncured materials from coming in contact with the skin, since people with particularly sensitive skin may be affected. The wearing of impervious rubber or plastic gloves will normally be necessary; likewise the use of eye protection. The skin should be thoroughly cleansed at the end of each working period by washing with soap and warm water. The use of solvents is to be avoided. Disposable paper - not cloth towels - should be used to dry the skin. Adequate ventilation of the working area is recommended. These precautions are described in greater detail in the Material Safety Data sheets for the individual products and should be referred to for fuller information.

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