

XMA 5005

TWO COMPONENT METHACRYLATE ADHESIVE

TECHNICAL DATA SHEET

Revised 15/12/2022



PRODUCT DESCRIPTION

Advancements in production processes and trends such as miniaturization, structural assembly properties and sustainability have made high performance Born2Bond™ XMA Structural Adhesives more important for engineers and designers for assembly in OEM & maintenance experts in MRO .

Bostik Born2Bond™ XMA5005 is a 10:1 methacrylate based product based on a patented technology. It was specifically designed for applications requiring a fast setting time together with structural bonding.

APPLICATION

The best results will be achieved when cured at ambient temperatures between 18°C and 28°C. Follow the cartridge preparation & use guide or contact your Bostik representative for any information concerning product use, dispensing equipment or substrates application.

STORAGE

XMA 5005 shelf life is 9 months in unopened original packaging. Product may be stored in a closed container in a dry place at temperature between 15°C and 25°C. Exposure to higher or lower temperature will result in a reduction of the stated shelf life.

KEY FEATURES

- Fast reactivity
- Structural bonding
- Can be applied in bead down to 0,5mm
- Colored material to control quality of mixing and curing

SURFACE PREPARATION

A good surface preparation is key for a good bonding result. Use adequate surface preparation before bonding. Degreasing and cleaning can be done with Born2Bond™ Pre-bonding cleaner on most substrates. Oxid layers should be removed from metals by sand blasting or other methods. For plastics use the right cleaning agent as stress cracking can occur with some solvents.

PRECAUTIONS

Adhesive contains methacrylate monomers and is flammable. Materials must be stored in cool place away from sources of heat. During the polymerization, the chemical reaction causes a typical smell, please use the product in a well-ventilated area. When the adhesive two components are mixed, an exothermic reaction can occur and generates heat. The amount of heat is dependent on the mass and thickness of the mixed product. Read material Safety Data Sheet before handling or using this product.

PRODUCT CHARACTERISTICS

Appearance	Blue when mixed, Green after curing
System	Two components 10:1 Volume Ratio
Polymerization	Room Temperature

PHYSICAL PROPERTIES

Viscosity at 23°C in mPa.s (RESIN)	~ 300,000 ¹
Viscosity at 23°C in mPa.s (HARDENER)	80, 000 - 250, 000 ²
Specific Gravity (ASTM D1875: 23°C / 73.4°)	1.203 g/mL (B)
Type	Non-sag

CURED PHYSICAL PROPERTIES

Tensile Strength (ISO 527)	16 - 20 MPa
Elastic Modulus (ISO 527)	800 - 1100 MPa
Elongation at Break (ISO 527)	4%
Glass Transition Temperature (ISO 6721)	111°C (231.8°F)
Coefficient of Linear Thermal Expansion (ISO 10545-8)	49.37·10 ⁻⁶
Linear Shrinkage (ISO 10563)	16.4%
Water Absorption (after 24 hrs) (ASTM D-542)	1.49%
Impact Resistance (after 24 hrs) (ISO 9653)	5.6 kJ/m ²

CURING PROPERTIES

Open time@23°C	~3 min
Fixture time@ 23C	~5 min
Fixture time @ 65°C	< 1 min
Full Cure	24 h

RANGE OF APPLICATION

XMA 5005 is recommended for the following substrates:

Metals	Composites	Plastics
Steel	Polyester	PVC
Stainless Steel	Vinylester	PS
Aluminum	Epoxy	ABS
Galvanized	Acrylic (Elium)	PC
PMMA		

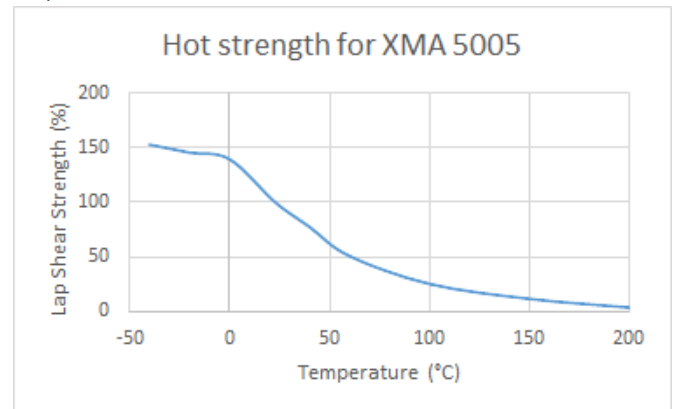
Lap Shear

For all the performance data provided in this TDS, the samples were prepared as follows: a 12.5mm * 25mm width adhesive bead was applied between two degreased GBMS pieces with a 0.250mm spacer. The samples was cured for 7 days @ 23°C/50% RH before testing. A load was applied on the first 24h. The tests were performed at 5mm/min.

Aluminum 6061 [MPa]	17 CF ⁵
Stainless Steel [MPa]	15 CF ⁵
GBMS [MPa]	17 CF5
FR4 [MPa]	14 CF ⁵
ABS [MPa]	5 SF ⁹
PC [MPa]	9 SF ⁹

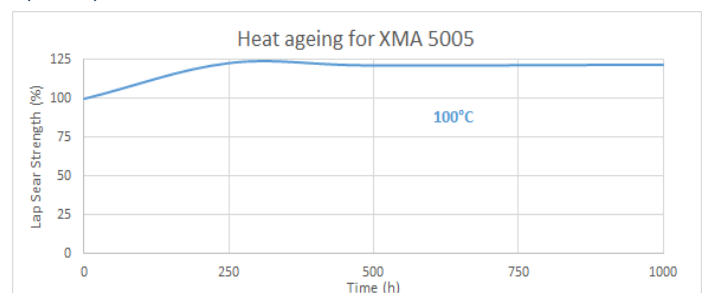
HOT STRENGTH

The graph below shows the adhesive performance on grit-blasted, mild steel (GBMS) at various temperatures. The adhesive was cured for one week at 22°C (71.6°F). The lap shear strength was tested according to ISO 4587. The strength test was performed in a climatic chamber that was set up for 30 minutes before testing at the indicated temperatures.



HEAT AGING

The graph below shows the heat aging results. The adhesive was aged at the temperature indicated, tested at 22°C (71.6°F) and cured for one week. The lap shear strength was tested according to ISO 4587 on grit-blasted, mild steel (GBMS).



CHEMICAL/SOLVENT RESISTANCE

Aged under conditions indicated and tested on GMBS.

% of Initial Strength vs. Exposure Time (hours) and vs. Type of Contaminant				
Testing on GMBS		% of Initial Strength		
ENVIRONMENT	TEMP	250 H	500 H	1000 H
Motor Oil	80°C (176°F)	117	116	119
IPA	23°C (73.4°F)	93	94	91
Water	23°C (73.4°F)	88	89	86

HEAT/HUMIDITY RESISTANCE

Aged under conditions indicated and tested @ 23°C (73,4°F).

% of Initial Strength vs. Exposure Time (hours)			
	% of Initial Strength		
ENVIRONMENT - 95% RH & 40°C (104°F)	250 H	500 H	1000 H
GBMS	96	91	84
% of Initial Strength			
ENVIRONMENT - 95% RH & 60°C (140°F)	250 H	500 H	1000 H
GBMS	87	84	81
% of Initial Strength			
ENVIRONMENT - 85% RH & 85°C (185°F)	250 H	500 H	1000 H
GBMS	40	23	47
Aluminum 6061	46	35	32
Stainless steel	36	24	20
ABS	83	80	95
PC	44	34	37
FR4	69	52	57

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