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Technical Data Sheet

KA 014

Two-component Room Temperature Curing Adhesive

for PA, PP, PE, TPO, and so on Plastics and Acrylic Substrates Bonding

Product Description

KA014 is two-component room temperature curing acrylic-based adhesive. No special surface treatment is required. Cured product demonstrates excellent adhesion strength to many low surface energy materials, such as polyamide (PA), polypropylene (PP), polyethylene (PE), and thermoplastic polyolefin (TPO). This product can replace screws, rivets, plastic welding and two-step processes, including chemical etchants, primers or surface treatments in many applications.

Features

1. After mixed, this product exhibits excellent operability.
2. This product offers the adhesion of different substrates.
3. This product can solve the structural adhesion of thermoplastic polyolefin elastomer (TPO).
4. This product does not require any pre-surface treatments for difficult adhesion substrates.
5. This product is solvent-free formula with low odor that fully complies to the environmental protection requirements.
6. This product exhibits excellent thermal stability.
7. This product exhibits excellent chemical resistance and water resistance.
8. This product complies to the 2011/65/EU RoHS regulations.
9. This product complies to chlorine < 900ppm, bromine < 900ppm, chlorine + bromine < 1500ppm.

Typical Uncured Properties

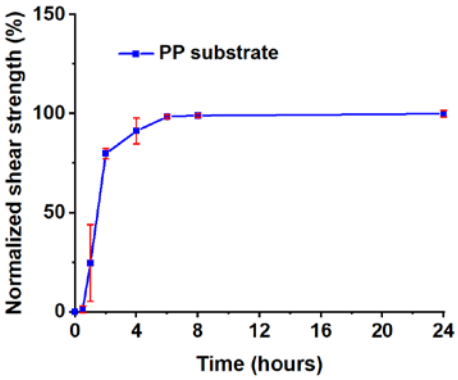
	KA014A	KA014B
Appearance	Liquid	Liquid
Color	Milky to creamy	Milky to creamy
Viscosity 25°C, cps	45,000~60,000 S14 10rpm	25,000~40,000 S14 10rpm
Thixotropic Index	≧4	≧3.9
Specific Gravity	1.06~1.21	1.02~1.12

Typical Curing Properties

Mix Ratio (A：B) by Weight	1：1
Mix Ratio (A：B) by Volume	1：1
Work Life, 25~33℃, 0.5g, min	4~6
Initial Strength Cure Time, 25~33℃, hr	2~3
Through Cure Time, 25~33℃, hr	24~48

Figure 1:

Relationship Between Curing Time and Shear Strength



Direction of Use

1. When using this product, discard the front end of the A part and B part mixed adhesive, then coating the product (A part and B part mixed adhesive) on the substrate to achieve the best bonding performance.
2. It should be applied to a clean surface which is free of dirt, grease or mold release. In many cases, a simple solvent wipe is sufficient.
3. Mix thoroughly by weight 1：1 before use.
4. After mixing, it should be used within the pot life.
5. For maximum bonding strength apply adhesive evenly to both surfaces to be jointed.
6. The handling information of this product supplied in dual syringe cartridge can be obtained by requesting a copy of “Introduction for Adhesive Cartridge Dispenser”, F-06122201.

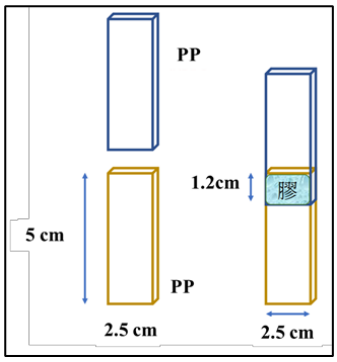
Typical Cured Properties*1

Glass Transition Temp., (MDSC)°C	-10
CTE*2 (<Tg), μm/m/ °C	123
CTE*2 (>Tg), μm/m/ °C	176
Specific Gravity	1.15
Durometer Hardness, Shore D	60
Shear Strength, PP+PP, kgf/cm^2	50
Shear Strength, PP+PA, kgf/cm^2	38
Shear Strength, HDPE+HDPE, kgf/cm^2	63
Shear Strength, HDPE+HDPE, 70°C *168hr, kgf/cm^2	56
Shear Strength, HDPE+HDPE, 70°C Water*168hr, kgf/cm^2	55
Shear Strength, HDPE+HDPE, 5% Brine *168hr, kgf/cm^2	62
Shear Strength, HDPE+HDPE, 70°C*5% Brine *168hr, kgf/cm^2	60
Shear Strength, HDPE+HDPE, 10% Sodium Hydroxide *168hr, kgf/cm^2	62
Shear Strength, HDPE+HDPE, Gasoline*168hr, kgf/cm^2	19
Shear Strength, HDPE+HDPE, Diesel Fuel*168hr, kgf/cm^2	60
Shear Strength, HDPE+HDPE, Toluene*168hr, kgf/cm^2	2.3
Shear Strength, HDPE+HDPE, Acetone*168hr, kgf/cm^2	6.4
Low temperature shear strength, HDPE+HDPE, -30°C, kgf/cm^2	47
Room temperature shear strength, HDPE+HDPE, 25°C, kgf/cm^2	63
High temperature shear strength, HDPE+HDPE, 50°C, kgf/cm^2	42
High temperature shear strength, HDPE+HDPE, 70°C, kgf/cm^2	30
High temperature shear strength, HDPE+HDPE, 85°C, kgf/cm^2	18
Shear Strength, PE+PE, kgf/cm^2	51
Shear Strength, UHMWPE+ UHMWPE, kgf/cm^2	34
Shear Strength, LDPE+LDPE, kgf/cm^2	25
Shear Strength, ABS+ABS, kgf/cm^2	121
Shear Strength, PC+PC, kgf/cm^2	123
Shear Strength, PMMA+PMMA, kgf/cm^2	102
Shear Strength, PVC+PVC, kgf/cm^2	140
Shear Strength, FRP+FRP, kgf/cm^2	164
Shear Strength, PTFE+PTFE, kgf/cm^2	16
Shear Strength, PS+PS, kgf/cm^2	52
Shear Strength, Glass+Glass, kgf/cm^2	42
Shear Strength, Copper+Copper, kgf/cm^2	152
Shear Strength, Al+Al, kgf/cm^2	150
Shear Strength, Fe+Fe, kgf/cm^2	162
Shear Strength, SUS304+SUS304, kgf/cm^2	156
Shear Strength, TPO+TPO, kgf/cm^2	51
Peel Strength, kgf	14
Weight Loss Ratio @100℃, %	<0.5
Weight Loss Ratio @150℃, %	<0.5
Weight Loss Ratio @200℃, %	1.3
Weight Loss Ratio @250℃, %	3.4
Weight Loss Ratio @300℃, %	8.9
Degradation Temp., 5wt% (TGA 10℃/min), ℃	228
Thermal Conductivity, W/mK	0.25
Thermal Resistance, m^{2}K/W	0.006
Volume Resistivity, ohm-cm	4.3*10^{13}
Surface Resistivity, ohm	4.2*10^{12}
Dielectric Constant, 100Hz	4.6/0.03
Dielectric Constant, 10KHz	4.4/0.02
Dielectric Constant, 1MHz	4.2/0.02
Dielectric Strength, KV/mm	16
Recommended Temperature Range, ℃	-40~100

*1 Specimen Cure Condition: 25~33℃
*2 CTE: Coefficient of Thermal Expansion

Chemical Resistance Test

Substrate	PP vs PP
Specimen Size	2.5cm * 5 cm
Adhesive Bonding Size	2.5cm * 1.2cm
Cure Condition	48hr @25C*50%RH
Resist to Every Chemical Liquid, day	14



Test Result

Initial Shear Strength, kgf/cm^2	47
Soaking in Room Temperature Water, 14 days, kgf/cm^2	47
Soaking in 70°C Hot Water, 14 days, kgf/cm^2	36
Soaking in 5% Room Temperature Brine, 14 days, kgf/cm^2	46
Soaking in 5% 70°C Hot Brine, 14 days, kgf/cm^2	37
10% Sodium Hydroxide, 14 days, kgf/cm^2	43
16% Hydrogen Chloride, 14 days, kgf/cm^2	47
25°C IPA, 14 days, kgf/cm^2	40
Environmentally Friendly Fefrigerant, 14 days, kgf/cm^2	46
Toluene, 14 days, kgf/cm^2	0
MEK, 14 days, kgf/cm^2	6.7

Storage and Shelf Life

This product should be stored in cool and dark place. This product should be kept without any possibility of sunlight or ultraviolet exposure. Replace the lid immediately after use. After opened, please keep the bottleneck clean and avoid any contact with acid-base content substances. Shelf life of this product is 1 year when stored at 2~13℃ in the original and unopened containers.

Caution

Some findings indicate a lack of potential for carcinogenicity with the compositions of this product by long term recurrent application to the skin. However, contact with skin is likely to produce mild transient reddening. It is important to remove adhesive from skin with soap and water thoroughly. DO NOT use solvents for cleaning hands. This product is of moderate acute toxicity by swallowing. If swallowed, call a physician. Avoid contact with eyes. In case of contact, flush with water for at least 15 minutes and get medical attention immediately. For specific information on this product, consult the Safety Data Sheet.