

PRATLEY ADHESIVE

SPECIAL PERFORMANCE INDUSTRIAL ADHESIVE

GRADE - SP020

DESCRIPTION

GRADE SP020 is a sophisticated third generation acrylic adhesive suited to demanding industrial, aerospace and assembly applications. It is the ideal replacement for spot welds and rivets. **Special performance properties include:** high peel strength, fast cure, toughness, choice between "mix" and "no mix" application, impact resistance, bonds most plastics, no primer required, bonds oily surfaces, easy application on production lines, exceptional oil and paraffin resistance, extremely tolerant of malproportioning.

MIXING RATIO (PART A : PART B)

Grade SP020 is extremely tolerant of mix ratio malproportioning. A 1:1 Part A:Part B ratio is ideal but the range 2,5:1 to 0,5:1 is acceptable with minimal performance loss.

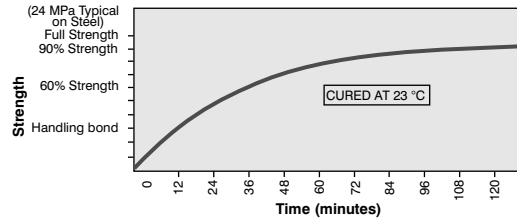
TYPICAL APPLICATIONS

- Precision assembly of sheet metal or sheet aluminium.
 - Assemble signboards.
 - Assemble panels and reinforcement frames.
 - Replace spot welding with bonded bead line.
 - Replace riveted parts with bonded bead line.
 - Bond magnets to loudspeakers, copiers and motors.
 - Assemble fibreglass boat parts.
- (Eliminates point loads, fatigue, weld burn and warping)

TIME TO CURE

Cure time is affected by reaction heat. The following data is valid for 2 g Part A Mixed on a heat sink surface with 2 g Part B, at room temperature (23 °C).

Handling Bond 5 minutes
60% Strength 35 minutes
90% Strength 2 Hours
Full Strength 24 Hours



HOW TO APPLY PRATLEY SP020

1. Clean the surface by lightly abrading or scouring to remove dust and rust. Total removal of oil is not necessary but will improve the bond strength.

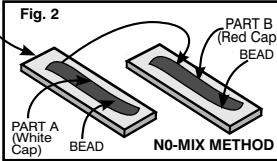
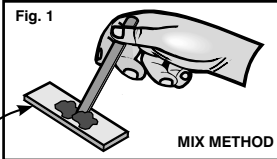
2. "Mix Method": Squeeze out equal quantities from each tube onto one surface and mix with a spatula (Fig. 1). This method is suitable if less than 4 g of adhesive is being used.

Alternatively

"No-Mix Method": Place a blob or bead of Part A onto one surface and a roughly equal sized blob or bead do not smear) of Part B onto other surface (Fig. 2). This method is recommended if quantities over 4 g (which would give off excessive heat if mixed), are being used.

3. Bring the surfaces together with a sliding action to mix and spread the adhesive. (Do this within 2 minutes when using the "mix method.")

4. Adjust substrates to desired position and apply pressure with weights or clamps.



ANSWERS TO FREQUENTLY ASKED QUESTIONS

What materials can be bonded with Pratley SP020?

Nearly all **metals**, **ceramics**, most **thermoplastics**, most **thermoset plastics** and most plastic **composites** like **fibreglass polyester composites**.

What materials will Pratley SP020 not bond?

The low surface energy plastics which are designed to resist adhesive bonding. These are **Teflon (PTFE)**, **Polyethylene (PE)** and **Polypropylene (PP)**. These plastics usually have a greasy feel to the touch. It will also not bond well to **rubber**.

What substrates require special consideration?

Pratley SP020 will successfully adhere to nylon, polystyrene, polycarbonate and ABS. These plastics are, however, prone to crazing and stress-cracking. We suggest that a non-critical area is test bonded first.

P.T.O.

ANSWERS TO FREQUENTLY ASKED QUESTIONS

What are some typical applications?

Pratley SP020 is a toughened adhesive designed for structural bonding.

Automobile

Joining thermoplastic assemblies like bumpers and dashboards. Joining steel or aluminium skins of truck bodies to "top hat" section stiffeners without stress raising rivets or welds. Joining FRP (Fibre Reinforced Plastic) and SMC (Sheet Moulded Compound) truck cab and sleeper assemblies.

Electronic

Fixing magnets to loudspeakers and motors.

Boat & Model Aircraft building

Speed up fibreglass and aluminium component assembly and simplify production.

Hi-Tech

Bonding aircraft skins, missile components and helicopter blades.

Is it better to mix the two components or use the alternate 'No-Mix Method'?

Applying small quantities of the two components (in equal amounts) to the same surface and mixing prior to bonding will generally improve strength by a marginal 5-20% depending on the substrates;

however

It is often much more convenient (especially in production) to apply separately the adhesive components, one to each surface and then bring them together. The slight reduction in strength is usually quite acceptable. Also, a large quantity >2 g of each part gives off too much heat if mixed.

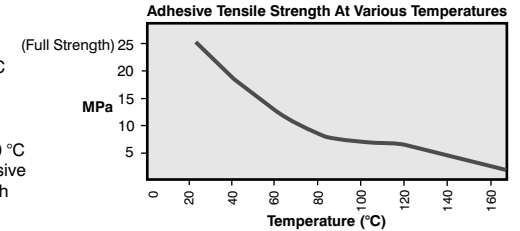
Is it true that Pratley SP020 will stick to oily surfaces?

Yes, it sticks very well to oily surfaces. However, higher strengths will be achieved if the surfaces are free of oil.

TEMPERATURE RESISTANCE

From the graph it is clear that strength reduces above 25 °C until the limiting temperature of 150 °C is reached beyond which SP020 will have no useful adhesion.

Interestingly, raising the cured adhesive temperature to 150 °C and then cooling, will increase the room temperature adhesive tensile strength by up to 80%. Toughness and peel strength will however be reduced.



TYPICAL STRENGTHS			
MIX METHOD	SUB-STRATE	LAP SHEAR (MPa)	RATING
Mixed	Steel	29	Excellent
No Mix	Steel	29	Excellent
Mixed	Aluminium	27	Excellent
No Mix	Aluminium	15	Excellent
Mixed	Brass	22	Excellent
No Mix	Brass	14	Good
Mixed	Copper	36	Excellent
No Mix	Copper	16	Good
Mixed	Polypropylene	2.7	Poor
No Mix	Polypropylene	2.7	Poor
Mixed	HDPE	1.2	N/A
No Mix	HDPE	1.2	N/A
Mixed	LDPE	0.6	N/A
No Mix	LDPE	0.6	N/A
Mixed	Polyacetal	2.7	Poor
No Mix	Polyacetal	2.7	Poor
Mixed	PTFE	0.9	N/A
No Mix	PTFE	0.6	N/A
Mixed	Nylon 6	3.8	Fair
No Mix	Nylon 6	3.8	Fair
Mixed	Polycarbonate	17	Good
No Mix	Polycarbonate	13	Good
Mixed	Perspex	15	Good
No Mix	Perspex	11	Good
Mixed	Rigid PVC	>14	Excellent
No Mix	Rigid PVC	>14	Excellent
Mixed	ABS	>14	Excellent
No Mix	ABS	>14	Excellent
Mixed	Polystyrene	8.1	Good
No Mix	Polystyrene	6.1	Fair
Mixed	Polyester Fibreglass	>8.0	Good
No Mix	Polyester Fibreglass	6	Good
Mixed	Neoprene	>1.3	Fair
No Mix	Neoprene	>1.3	Fair
Mixed	Wood	>8	Excellent
No Mix	Wood	>8	Excellent

* The '>' means that during testing the substrate broke before the adhesive.

IMMERSION CHEMICAL RESISTANCE

CHEMICAL	RESISTANCE RATING
Battery Acid	GOOD
10% Sulphuric Acid	
10% Nitric Acid	
Diesel Fuel	
Paraffin	
Auto Transmission Oil	FAIR
Engine Oil (SAE30)	
Transformer Oil	
Petrol	FAIR
10% Hydrochloric Acid	
Water	POOR
Swimming Pool Water	
Detergent & Water	
Soluble Oil	
10% Ammonia	SWOLLEN or DESTROYED
Acetone	
Toluene	
Brake Fluid	

PRATLEY

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