



# TECHNICAL LEAFLET

SUNSTAR ENGINEERING INC.

## One-Part Structural Epoxy Based Adhesive PENGUIN CEMENT #1069

**Penguin Cement #1069** is a one-part epoxy based structural adhesive with superior rust prevention.

### a). Characteristics

1. Cures perfectly within 1 hour at above 160°C. Good stability in storage is guaranteed for 3 months at room temperature (20°C)
2. Applicable for spot welding
3. Shows good adhesion to oily surface
4. Provides superior rust prevention of both border and inner part of the adhered substances
5. ED paintable
6. High fatigue strength

### b). Physical Properties

Appearance	: Black Paste
Viscosity (20°C)	: 210 x 10 <sup>4</sup> cps
Specific Gravity	: 1.43
Non-Volatile Content (%)	: 99.5 %

* Viscosity	: BS type rotor x 2 rpm
Percent solids	: 3 hours at 105°C

### c). General Performances

Items	Records
i). Normal Adhesive Strength (20°C)	
Shear Strength (kgf/cm <sup>2</sup> )	122
Peel Strength (kgf/25mm)	10.2

ii). Adhesive Strength to oily Surface (20°C) Shear Strength (kgf/cm <sup>2</sup> )	118
<b>Items</b>	<b>Records</b>
iii). Fatigue (Bending) test 10mmØ Mandorel 20mmØ Mandorel	No crack No crack
iv). Heat Aging Resistance (80°C/14days) Shear Strength (kgf/cm <sup>2</sup> )	136
v). Water Immersion Resistance (7days) Shear Strength (kgf/cm <sup>2</sup> )	106
vi). Thermal Shock (5 cycles) Shear Strength (kgf/cm <sup>2</sup> )*	108
vii). Over Baking Resistance (190°C/20 min) Shear Strength (kgf/cm <sup>2</sup> )	129
viii). Rust Prevention Salt Spray (1,000 hours)	Good

**Oil used** : W-32HM

**Thermal Shock** : 80°C x 3 hrs → 20°C x 0.5 hrs → -30°C x 3 hrs →  
20°C x 0.5 hrs → 50°C / 100%RH x 15.5 hrs →  
20°C x 0.5 hrs as 1 cycle

**Over Baking** : 190°C/ 20 min

**Preparation of test piece**

Shear Test : JIS G-3141 25 x 100 x 1.6 mm steel plate

Peel Test : JIS C-3141 25 x 100 x 0.8 mm steel plate

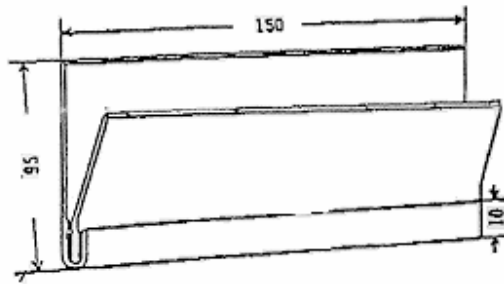
Baking : 170°C/ 20 min  
Overlap 12.5 mm

Test Equipment : Shimazu Autograph IS-500

**Rust Prevention**

Salt Spray test : According to JIS K5400 with adhesive thickness  
of 200μ, curing at 170°C/20 min

Cycle test : Dip in NaCl sol x 4 hrs → 20°C x 20 hrs →  
50°C x 4hrs → 40°C/ 95% x 92 hrs using test piece  
below with curing at 170°C/20 min



Unit: mm

**d). Precautions**

1. As Penguin Cement #1069 is a one-part type adhesive, it should be stored in dark and cool place ( $\approx 10^{\circ}\text{C}$ ) with its cap or lid closely tightened.
2. During application, wear protectors like groves or apron so that the adhesive does not stick to the skin
3. In case #1063 does stick to skin, immediately wipe it off with thinner and wash with soap and water

**e). Packaging**

Pail can            20kg