

**DESCRIPTION of  
SPECIFICATIONS  
for  
ACRYTHANE TSR-5**

**DAINIPPON TORYO CO.,LTD  
OSAKA**

6-1-124 Nishikujyo, Konohana-ku, Osaka 554-0012, Japan  
Tel. 06-6466-6652  
Fax. 06-6461-3055

# ACRYTHANE TST-5

## 1 . OUTLINE

ACRYTHANE TSR-5 is an acrylic urethane type coating which comprises acrylic polyol and non-yellowing polyisocyanate as the main resin system. It is developed for the home electric appliances which especially requires the alcohol resistance, abrasion resistance and build up the strong coating film. It has also the feature of excellent weathering resistance. Further, Acrythane TSR-5 offers the good weatherability so as to be durable under severe conditions.

## 2 . DINSTINCT FEATURES

- 1) Strong coating film with excellent adhesiveness
- 2) Excellent Alcohol Resistance
- 3) Excellent Abrasion Resistance with strong hardness
- 4) Excellent Water and Moisture Resistance
- 5) Possible for drying at low temperature
- 6) Easier handling ( in a hand and static spraying )

## 3 . USAGES and COATING PROCESS

Acrythane TSR-5 is applicable to such substrates and applications as ABS resin moldings, ABS/PC alloy moldings, Automotive Interior and Exterior Parts, Home Electric Appliances and so on, respectively.

Process		Specification	
1	Pre-treatment	Wipe off the oil, release agent, dust etc on the surface of the substrate with IPA, thinner etc	
2	Coating Adjustment	paint	Acrythane TSR-5
		Hardener	Acrythane Hardener
		Mixing ratio	Paint : Hardener = 10 : 1
		Thinner	Acrythane Thinner
		Coating viscosity	11~13 sec. ( IHS NK - 2 at 20°C)
		Dilution ratio	50~60 %
3	Painting	Method	hand and static spraying
		Film thickness	15 ± 3 μ m
4	Setting <sup>^</sup>	More than 5 minutes	
5	Dry Condition	70~80 °C, 30 minutes	

## 4 . TYPE of THINNER (USAGE)

Atmospheric temperature	below 15 °C	15 ~25 °C	Above 25 °C
For general	Acrythane S - 9500	Acrythane S - 9600	Acrythane S - 9700
For PC, PC/ABS	Acrythane PC - 9500	Acrythane PC - 9600	Acrythane PC - 9700

\*Notabilia

1. Paint is the two coat type so only necessary quantity should be arranged.  
Working life ( pot life ) → 8 hours (liquid temperature : 20 °C)  
6 hours ( liquid temperature : 30 °C)
2. After using the paint and hardener and if it remained unused, please seal the cap tightly and keep them.
3. Please coat the film thickness more than 12 μ m. If it is less than that, lifting problem might happen between base and over coatings.

## 5. DRY COATING FILM PERFORMANCE

Test Item		Result	Test Method
1	Appearance	No abnormality	No pin-hole, wrinkle or sagging are seen
2	Adhesion	100/100 OK	1 mm <sup>2</sup> of cross cuts x 100 Run a peeling test with Sellotape
3	Pencil Hardness	H	Scratching with Mitsubishi-uni pencil
4	Abrasion resistance	10000times No abnormality	Traverse type abrader( load 0.5kg/cm <sup>2</sup> stroke 100mm)
5	Acid resistance	No abnormality	0.1N H <sub>2</sub> SO <sub>4</sub> 0.2ml Spot 20°C 24 hrs
6	Alkali resistance	No abnormality	0.1N NaOH 0.2ml spot 20°C 24 hrs
7	Gasoline resistance	No abnormality	Maceration in gasoline for 30min(with cross cut)
8	Solvent resistance	No abnormality	Benzene/Toluene= 9/1, maceration 1 hr, after leaving for 2 hrs, check the appearance
9	Alcohol resistance	More than 1000 times	99.8% of 1kg ethanol weight with gauze on it
10	Hot-water resistance (1) secondary adherence	No abnormality	40°C ion-exchange water, maceration 240 hrs After leaving 24 hours, peeling off the 2 mm <sup>2</sup> cross cut with sellotape.
		100/100 OK	
11	Hot-water resistance (2) secondary adherence	No abnormality	80°C ion-exchange water, maceration 24 hrs After leaving 24 hrs, peeling off the 2 mm <sup>2</sup> cross cut with sellotape.
		100/100 OK	
12	Humidity resistance secondary adherence	No abnormality	More than 50°C~98%RH、 240 hours, After leaving 24 hours, peeling off the 2 mm <sup>2</sup> cross cut with sellotape.
		100/100 OK	
13	Weathering resistance	Δ E =0.87 Gloss retention ratio 92%	Sunshine weather O meter 1000 hours

Test sample : ABS resin color-chip

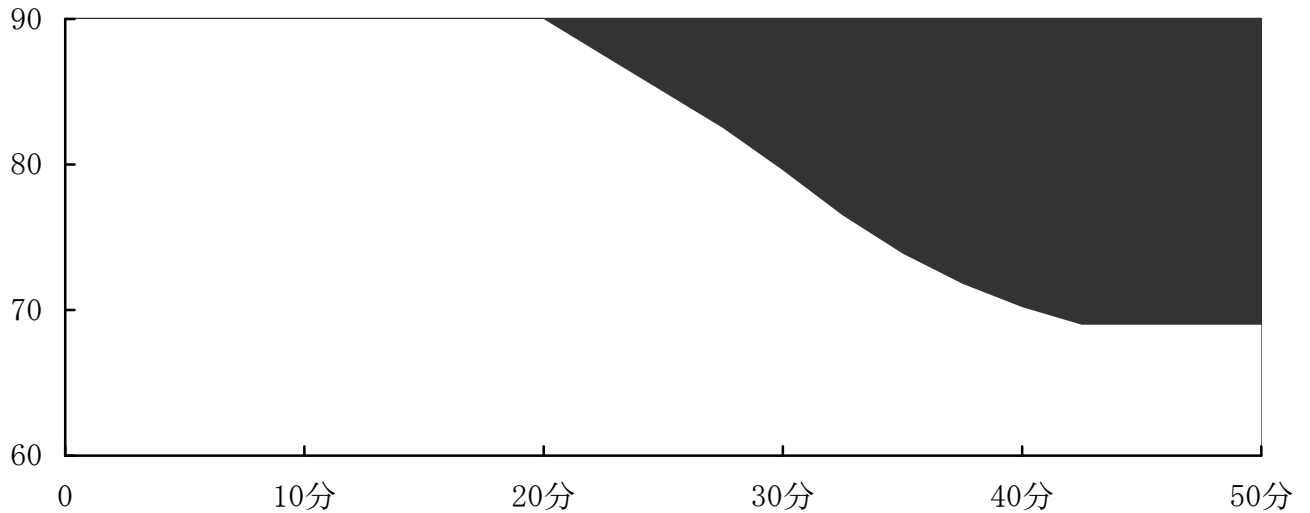
Color : Metallic Silver

Drying Condition : 80°C x 30min

Film Thickness : 15 μ m

Starting time for Analysis : Leave 72 hours in the room temperature(20°C) after dry

6. SPREAD OF DRY CONDITION



The specification mentioned at the previous page is the standard one, however it should be packed after leaving one night. The color might transfer to the packing material by the way of packing, so please be careful.

7. GEL FRACTION

GEL FRACTION

DRY CONDITION \ TIME	24H	48H	72H	96H	120H	240H
70°C × 30min	75.57	78.59	80.32	85.54	88.23	89.31
80°C × 30min	83.06	84.46	85.31	87.63	88.03	89.76
90°C × 30min	87.71	89.23	90.34	91.51	92.12	92.16

8. VARIATION PER HOUR UNDER THE LOW/DRY CONDITON and ALCOHOL RESISTENCE by HIGH HUMIDITY

The TEST RESULT of ALCOHOLIC REGISTANCE by VARIATON PER HOUR

	Ethanol			Methanol		
	60°Cx30min	70°Cx30min	80°Cx30min	60°Cx30min	70°Cx30min	80°Cx30min
24 hours	24 times	32 times	89 times	14 times	25 times	56 times
48 hours	53 times	64 times	107 times	26 times	54 times	73 times
72 hours	104 times	111 times	167 times	45 times	74 times	87 times
96 hours	104 times	111 times	167 times	67 times	107 times	113 times
120 hours	213 times	228 times	235 times	87 times	145 times	154 times

## 9 . PRECAUTION on APPLICAITON

- 1 . Please pre-stir the coatings well and put the paint and hardener at a proper mixing ratio in stipulated range and mix it.
- 2 . In case of mixing paints, please prepare the paints necessary quantity for minimum volume that should be used out within the instructed time
- 3 . Please use the paint and its additives as soon as possible after opening cans and if the paints remain unused, store them in the cool place with closing cap tightly on it.
- 4 . In handling the coatings, please keep the rule such as the prevention from organic solvent toxicity.