

## HAS Ink series

### (Gloss Ink for PC, PVC, Acrylic Name Plates)

HAS ink is highly resistant nameplate inks used for screen printing on instrument panels and various display panels for automobiles and home appliances. They are particularly suitable for applications requiring heat resistance and alcohol resistance. It has particularly excellent adhesion to polycarbonate and can produce printed materials with high surface hardness.

<b>Applications</b>	Nameplates for automobile, home appliance, and various display boards	
<b>Special Features</b>	<ul style="list-style-type: none"> <li>• Solves the problem of cracks and haze on plastic covers caused by residual solvents emitted from printed materials on automobile instrument panels.</li> <li>• Excellent resistance for alcohol and heat.</li> <li>• Excellent weather resistant colors available.</li> </ul>	
<b>Substrates</b>	Polycarbonate, acrylic, soft & rigid PVC, and ABS.	
<b>Dilution</b>	G-001 SOLVENT (fast dry), G-002 SOLVENT (Standard), G-003 SOLVENT (slow), and G-004 (extra slow) Dilution: 20 to 30%	
<b>Additives</b>	SM-40 DEFOAMER 2% (For anti-foam and improvement in leveling)	
<b>Recommended Cleaner</b>	Screen Cleaner L2	
<b>Mesh</b>	T 200 to 300 mesh (Coverage would be 20 to 28m <sup>2</sup> /kg at 250 mesh)	
<b>Drying</b>	80°C 60 min	<u>Overprint</u> Each layer 60 to 80°C 10 min Final layer 80°C 60 min

<b>Standard Colors</b>	000 MEDIUM	190 BRILLIANT RED	611C OPAQUE WHITE
	001 VICTORIA	221 YELLOW	797C OPAQUE GREEN
	010 VICTORIA	240 LIGHT YELLOW	821 VIOLET
	002 EXTENDER	246 LIGHT YELLOW	911 BLACK
	033 GEL RETARDER	263 REDDISH YELLOW	911C OPAQUE BLACK
	121C OPAQUE SCARLET	271 OPAQUE LIGHT YELLOW	MK TRANSPARENT YELLOW
	161 SCARLET	277 OPAQUE REDDISH YELLOW	MK TRANSPARENT RED
	163 RED	391C OPAQUE BLUE	052 TC YELLOW
	166 RED	577 OPAQUE ORANGE	135 TC MAGENTA
	168 SCARLET	581 MAGENTA	215 TC CYAN D
	177 OPAQUE RED	611 WHITE	915 TC BLACK
	182 RED	618 WHITE	

**GEL RETARDER**

Gel Retarder improves ink flow through the gauze and prevents ink sagging, improves printability. Therefore, it is effective for printing fine lines, metallic colors, and transparent colors. Use Gel Retarder with 10 to 20% dilution by decreasing the amount of Solvent.

**Caution**

- Adhesion test must be done before printing as quality of plastic may differ depending on manufacturers or lots. It is also recommended to wipe surface of the printing part with alcohol to prevent defective print due to static electricity and insufficient adhesion due to plasticizer and additive floating.
- Checking before commercialization: Adhesion and resistance properties may change due to differences in substrates, processes, printing and drying conditions. Be sure to check the adhesiveness and resistance properties before mass production printing
- Ink shelf life: 24 months from production date, unopened.

**Safety**

UN No.: 1210  
UN Classification: Class 3 Flammable Liquids (Flash point is over 23 Degree C)

**Handling**

- Use safety gloves and eyeglasses to protect skin and eyes. If the ink comes in contact with skin, wash with soap and plenty of water (or lukewarm water) and consult with a doctor.
- Containers should be closed tightly after use and stored in a cool and dark place.
- SDS is available upon request. Please request a copy and read it carefully before handling the products.

**Resistance**

Test item	Test conditions	Test results
Adhesion	JIS K 5600-5-6 (Cross-cut test): ISO 2409: 1mm interval 6X6 cuts, cellophane tape peel	0(no peel)
Heat	JISK5600-6-3 : ISO 3248: 130°C、48 hrs. check appearance and peeling off from the substrate.	No defect
Hot water	JIS K 5600-6-2: ISO 2812-2, Soak 48 hrs. in 40°C warm water, then check appearance and peeling off from the substrate.	No defect
Alcohol	Gakushin scrub tester, cotton soaked ethanol, 200g weight, 200 back and forth. Then check color fade.	No defect
Scrub	Gakushin scrub tester, with cotton, 500g weight, 500 back and forth, check color fade.	No defect
Bend test	JIS K 5600-5-1: ISO 1519 (Cylindrical Mandrel) 2mm dia. Check crack.	No defect
Falling-weight test	JIS K 5600-5-3: Dupont Impulse Tester, drop 300g weight from 30cm height, check appearance.	No defect
Punching	Cut with a punch, check cut edges.	No defect
Gloss level	Gross meter (60 °/ 911 C OPAQUE BLACK)	No defect
Blocking	ISO 11341: 10 kg/cm <sup>2</sup> , 40°C, 24hours	No defect
Accelerated weathering	JIS K5600 7-7 ISO 11341, Radiant energy 60W/m <sup>2</sup> , Black panel temp. 63+/-3°C, raining rate 18min/120min, 1000 hrs. check appearance and peeling.	(700-1500h) No defect

\*Test conditions 【HAS- 911C Opaque Black, 911 Black, Medium】 【G-002 Solvent 20%】  
【60°C 30min, natural dry 168 hrs.】 【T 250】 【Substrate:PC】

\*Above test was conducted after leaving above printed materials for 24 hours at a room temperature.

\*Above resistance test results are measured results in our laboratory and they are not guaranteed values.

\*Information contained in this catalog may change without prior notice.

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