

1000 SERIES

The 1000 series is a family of two part reaction epoxy based inks having equal performance for printing on a wide variety of materials including aluminum, metallic coats, stainless steel, melamine, phenol resins, treated olefin-type resins, glass, and ceramics. They are highly regarded for their outstanding film toughness and chemical resistance over a long period of time.

Ink type

Two part reaction ink.

Usage

Iron, aluminum, stainless steel, and other metals, metal-coated industrial parts, markings and plates, packages and containers made of glass, thermosetting plastics, treated olefin-based resin, etc., requiring resistance against acids, alkalines, solvents, and friction.

Characteristics

Flat and glossy finish of outstanding weather resistance.

Adhesion of the inks in this series is far greater compared to other types.

Diluent

Standard solvent: T-1000

Slow dry solvent: T-965

Hardener

The mixing ratio of the standard color Ink: Hardener= 70: 30 (by weight)

Mixing ratio varies in the color and the kind of hardener. As for the details, see an attached table.

As time passes, viscosity rises to the hardener mixtured ink. It can be used in 20C deg. for 12 hours, but the performance of the ink declines when hardening proceeds too much. It is economical that only necessary quantity mixes and finishes using inks in the time.

The kind of hardener

1000 HARDENER: Standard hardener

1000 MATTE HARDENER D: Surface becomes mat finish

1000 SEMI MATTE HARDENER: Surface becomes semi mat finish

1000 HARDENER No.5: Fast hardening type

1000 HARDENER No.6: Semi fast hardening type

1000 F HARDENER: High viscosity hardener

	1000 HARDENER	1000 MATTE HARDENER D	1000 F HARDENER	1000 SEMIMATTE HARDENER	1000 HARDENER N05	1000 HARDENER N06
Standard Color	70:30	70:30	70:30	70:30	75:25	75:25
800 850 Transparent Color	60:40	60:40	60:40	60:40	70:30	70:30
Conc 120	75:25	75:25	75:25	75:25	80:20	80:20
Conc 200						
Conc 220						
Conc 265						
Conc 320	70:30	70:30	70:30	70:30	75:25	75:25
Conc 350	70:30	70:30	70:30	70:30	75:25	75:25
Conc 400						
Conc 440						
Conc 460						
Conc 495						
Conc 495						
Conc 500						
Conc 510						
Conc 550	80:20	80:20	80:20	80:20	85:15	85:15
Conc 580						
Super-Conc 120	75:25	75:25	75:25	75:25	80:20	80:20
Super-Conc 550	70:30	70:30	70:30	70:30	75:25	75:25
Silver Color	75:25	75:25	75:25	75:25	80:20	80:20
Fluorescent Color						

Washup
T-31

Printing

Use of Tetoron or nylon screens of 200-300 mesh number is recommended.

Drying time

May be air dried or dried by baking.

Air dry at 25C : 20-30 hours (Dries to set to touch in about 2 hours.)

Baking at 80C : 40 minutes

Baking at 120C : 20 minutes

Yellowing may result, however, when a white ink in this series is baked at temperature over 100C.

Notes

Fluorescent colors are available upon request, but weathering resistance is inferior.

Fogging may result in rainy weather due to moisture. This may be prevented by allowing the ink to set and baking it immediately after printing. Bubbles and pinholes may be seen during printing due to inappropriate ink viscosity or printing environments (temperature, humidity, etc.). Use Care#8 (additive) to prevent these problems if viscosity adjustment is not helpful. Avoid overdosage of the additive.

Reference Data (Evaluation: Good A-B-C-D-E Poor)

The difference in performance by the kind of the material

Test Item	Aluminum	Steel	Tinplate	Glass
Water Resistance	A	A	A	D
Boiling Resistance	B	B	C	E
Acid Resistance	B	B	C	D
Alkali Resistance	B	B	C	D

The difference in performance by the dryness condition

Test Item	20C deg. 7 days	60C deg. 60 min.	80C deg. 60 min.	100C deg. 30 min.	120C deg. 30 min.	150C deg. 30 min.
Adhesion	B	A	A	A	A	A
Hardness	C	C	B	B	A	A
Acid Resistance	D	D	C	B	B	B
Alkali Resistance	D	D	C	B	B	B
Solvent Resistance	D	D	D	B	B	B

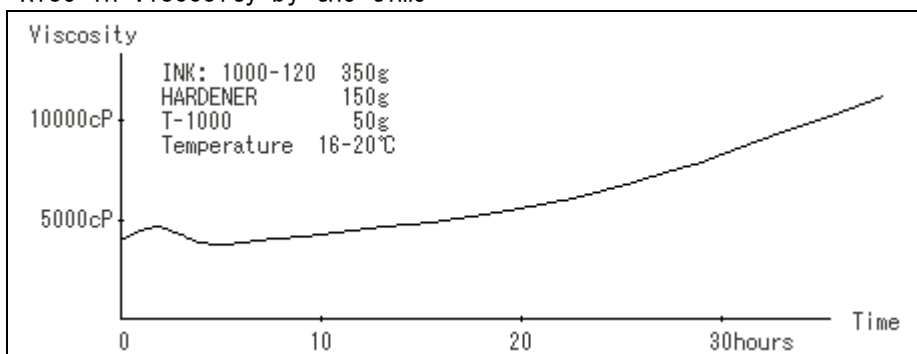
The difference in performance by the hardener mixing ratio

Test Item	Ink:Hardener =80:20	Ink:Hardener =70:30	Ink:Hardener =60:40
Pencil Hardness	3H	3H	2H
Methanol Friction Resistance	A	B	D
Alkali Resistance	B	B	E
Secondary Processability	C	B	A

The difference in performance by the color

Test item	120 White	210 Lemon Yellow	265 Ultra Orange	440 Blue	510 American Red	710 Black
Methanol Resistance	A	A	C	C	C	C
Acid Resistance	A	A	A	C	C	C
Alkali Resistance	A	A	C	C	B	C

Rise in viscosity by the time



Reference Data

Printed Surface Performance Table

Test Item	Condition	Result
Hardness	Pencil hardness 45 angle, 200g load	3H
Adhesion	Peeling test on cross cut using cellophane tape	100/100
Impact Resistance	300g steel ball dropped on samples from 1m height	Not Affected
Line Drawing Test	Cut at 1.5kg load and peeled using cellophane tape	Not Affected
Erichsen Test	4mm diameter	Not Affected
Flex Test	2mm diameter at 180 angle	Not Affected
Water Resistance	Soaked in water for 1 month	Not Affected
Moisture Resistance	40C * 90%RH * 120 hours	Not Affected
Saltwater Resistance	Soaked in 5% NaCl for 1 month	Not Affected
Acid Resistance	Soaked in 5% HCl for 24 hours	Not Affected
	Soaked in 5% H ₂ SO ₄ for 24 hours	Not Affected
Alkali Resistance	Soaked in 5% NaOH for 12 hours	Not Affected
	Soaked in 10% NaOH for 12 hours	Not Affected
Detergent Resistance	Soaked in 3% detergent for 7 days	Not Affected
Boiling Resistance	Soaked in boiling water for 30 minutes	Not Affected
Methanol Resistance	Soaked in methanol for 24 hours	Not Affected
Ethanol Resistance	Soaked in ethanol alcohol for 24 hours	Not Affected
Toluene Resistance	Soaked in toluene for 24 hours	Not Affected
MEK Resistance	Soaked in MEK for 24 hours	Not Affected
Gasoline Resistance	Soaked in gasoline for 24 hours	Not Affected
Kerosene Resistance	Soaked in kerosene for 24 hours	Not Affected
Turpentine Resistance	Soaked in mineral turpentine for 24 hours	Not Affected
Methanol Friction Resistance	Rubbed 50 times with methanol at 500g load	Not Affected
Ethanol Friction Resistance	Rubbed 50 times with ethanol at 500g load	Not Affected
Toluene Friction Resistance	Rubbed 50 times with toluene at 500g load	Not Affected
MEK Friction Resistance	Rubbed 50 times with MEK at 500g load	Not Affected

Test Conditions

Ink : 1000 120 White / 710 Black
 Material : Aluminum board / Steel board
 Screen : Tetoron 200 mesh
 Squeegee : Urethane hard type
 Printing : By hand
 Mixing Ratio : Ink70 : Hardener30
 Diluent : 15%
 Drying : 120C 30 minutes