
Ink mixing Instructions:

Pad printing Inks are mixed by weight not volume. *(A digital scale measuring in grams is recommended.)*

- Open the Ink Container and mix thoroughly.
 - Place an appropriate container on the scale & zero out the TARE on the scale.
 - Add 100% of ink *(or 100 grams)* into the container.
 - Zero out the TARE on the scale
 - Selected Hardener (Normal/Fast) should be added at this time. Ratios are listed on the package.
(example 25% or 25 grams of UR200 hardener is added)
 - **MIX THOROUGHLY FOR 2-3 MINUTES**
 - Zero out the scale, add minimum 25% *(25 grams)* up to 35% *(35 grams)* of thinner.
 - **MIX THOROUGHLY AGAIN FOR 2-3 MINUTES**
- Let Stand for 3 minutes before use.

Ink has a pot-life of 8-10 hours when hardeners have been added.

Ink has to be periodically re-thinned in the ink cup to replace evaporated solvents.

Typically a 2-3 hour maintenance program can be implemented on longer runs.

Never return ink back into the original container after dispensing.

All mix ratios are based off of the original 100% ink weight, do not accumulate.

If you require assistance please contact technical support 1 800 982 1928

Polyurethane pad printing ink specifically formulated with transferability, opacity, adhesion flexibility and high wear resistance

Semi-Glossy, Fast Drying, chemical resistant, Two component system that utilizes 1 of 2 catalysts

Application

Substrates:

The Polyurethane ink series adheres extremely well to ABS, Acrylics, Polystyrene, Polycarbonate, SAN, PET, Rigid and flexible PVC, Polypropylene (pretreated), varnished surfaces, Nylon, Polyurethane, Powder Coated and Anodized surfaces, Glass, pretreated Polypropylene, pretreated Polyethylene, and POM's such as Delrin with pre-treat and post bake.

Because substrates may be different in printability, preliminary trials are important to decide the suitability for intended use.

Areas of Use:

Sigma Polyurethane inks are currently being used in Automotive, Ad Specialty, Cosmetic packaging, Electronic component, Electrical appliance, Eye wear, Defense, Garment, Hand tool, Medical device, Sporting goods and Toy industries.

Ink Characteristics

Drying:

	UR 200	UR 201
Touch-dry 70°F (20°C)	15-40 Sec	15-40 Sec
Final Hardness (up to 350 °F (175°C))	30 min	30 min

Pot Life:

The pot life (processing period) at room temperature (approx. 21°C/70 ° F) will be about 12-14 h with UR 200 and about 8-10 h with UR 201. Higher temperatures reduce pot life. If these times are exceeded, the ink's adhesion and resistance may be reduced even if the ink characteristics show no obvious change.

Fade Resistance:

Sigma uses quality pigments to provide lasting vivid colors of printing ink. Maximum resistance to fading and

weathering is achieved when using opaque colors. Only applying a thin layer of ink (shallow plate) to your substrate will negatively affect the fade resistance of the print.

Wear Resistance:

After being allowed to fully cure to the substrate Sigma Polyurethane ink demonstrates excellent adhesion on a wide variety of substrates. Performance characteristics include resistance to alcohol, scratch, rub, and tape.

Color System

Opaque Colors

UR 310	Black EO
UR 311	Light Gray EO
UR 320	White EO
UR 330	Primrose Yellow EO
UR 331	Rich Yellow EO
UR 340	Orange EO
UR 350	Fire Red EO
UR 351	Red EO
UR 380	Reflex Blue EO
UR 381	Blue EO
UR 390	Green EO

Mixing Colors

UR-M-10	Mixing Black
UR-M-20	Mixing White
UR-M-30	Mixing Warm Yellow
UR-M-31	Mixing Yellow
UR-M-40	Mixing Orange
UR-M-50	Mixing Pink
UR-M-51	Mixing Red
UR-M-52	Mixing Scarlet Red
UR-M-70	Mixing Violet
UR-M-80	Mixing Blue
UR-M-90	Mixing Green

UR CLEAR Clear/Varnish

CMYK

UR-P CYAN	Process Cyan
UR-P MAGENTA	Process Magenta
UR-P YELLOW	Process Yellow
UR-P BLACK	Process Black

Custom Color Matching

As a service, Sigma will custom match to Pantone, RAL, Federal Standard, or sample color chips.

Additives

UR Ink Catalyst

UR 200	Hardener	25%
UR 201	Glass Hardener	25%

Catalyst must be added to the ink concentrate as a percentage of the weight of the ink. These additives should be mixed into the ink before thinning. Post bake may be needed for the best results on particular substrates and should be tested and confirmed before production.

Thinners

UR 101	Retarder	3-10%
UR 102	Thinner	15-30%
UR 103	Fast Thinner	15-30%

Thinner should be added to the ink concentrate as a percentage of the weight of ink measured out. Thinning requirements may require adjustment for particular process, speed or environmental conditions.

Printing Plates

All commercially available plate materials including: photopolymer, both thick- and thin-steel as well as ceramic coated metal are compatible with Sigma Polyurethane ink. Recommended artwork etch depth is 1.2 thousandths of an inch (0.0012 inch).

Printing Methods

Sigma Polyurethane ink is specifically formulated for the demands of the pad printing process; with transferability, opacity, adhesion, flexibility, and high wear resistance being its core attributes.

Sigma UR Series has been extensively tested with closed-cup pad printing machines and has been used in screen printing and open ink well printing systems. Thinning requirements must be tailored to the specific printing process and environmental conditions.

Recommendations

Mix contents of the ink can thoroughly before each use. When using hardener and/or adhesion promoter, blend these additives with the measured amount of ink for at least 2 minutes before adding thinner (see additives section for mixing ratios). Ink is supplied in concentrated form (Thinner must be added for production use). UR 101 Retarder may be added to control ink tacking performance. All containers should be tightly sealed when not in use. Do not pour mixed or used ink back into the original container.

Shelf Life

Shelf life depends upon the formula/ reactivity of the ink system as well as the storage temperature. The shelf life for an unopened ink container if stored in a dark room at a temperature of 60-78°F is:

UR Ink – Metallic Colors	2.5 years
UR Ink – All Other Colors	3.5 years
UR Ink Additives	2 years
UR Ink Thinners	5 years

Under different storage conditions, especially higher storage temperatures, the shelf life is reduced. In such cases, the warranty given by Sigma expires

Labeling

Original ink and additive containers are labeled with appropriate health and safety information as well as downloadable MSDS. Sigma or its distributors can be contacted for any additional questions or concerns regarding labeling.

Certifications:

- Phthalate Free: Annex XVII Items 51 & 52 of the REACH Regulation (EC) NO. 1907/2006 (formerly known as Directive 2005/84/EC)
- RoHS Compliant: Free of Lead, Cadmium, Mercury, Hex-Cr, PBB, PBDE-fire retardant
- REACH Compliant: Free of SVHC, as listed by ECHA

Note

Any technical recommendations relayed through this TDS are based through our knowledge from our preliminary testing and qualifications of our inks. This information is merely to inform about our products and their uses. This is not meant as an assurance for certain properties of the products nor their suitability for each application. You are, for that reason, obliged to carry out your own tests with our products to prove they are suitable for the desired process. The selection and testing of the ink for specific application is exclusively your responsibility. Should any liability claims arise, they shall be limited to the value of the goods delivered by us and utilized by you with respect to any and all damages not caused intentionally or by gross negligence.