





Sigma Ink  
12800 Brookprinter place  
Poway, CA 92064 USA

## SAFETY DATA SHEET

### 1. Identification

<b>Product name</b>	Sigma UR Series
<b>Product identifier</b>	Sigma UR Series
<b>Recommended uses and Restrictions</b>	Polyurethane Ink
<b>Manufacturer or supplier's details</b>	Sigma Inks (US) 12800 Brookprinter place, Poway, CA 92064 USA Phone: (888) 424-9300 Website: <a href="http://www.sigmainks.com">www.sigmainks.com</a> Contact the Distributor: <a href="http://www.printexusa.com">www.printexusa.com</a>
<b>Emergency telephone</b>	Chemtrec (E.U.): (800) 424-9300 Chemtrec (Outside USA): (703) 527-3887 (Collect Calls Accepted)

### 2. Hazards identification

<b>Classification of the substance or mixture</b>	
- Physical hazards	Category 3, Flammable liquids
- Health hazards	No relevant data available
<b>Signaling elements</b>	
- Identification of the substance or mixture	Sigma UR series
- Hazard pictograms	 
- Signal word	Warning
- Hazard statements	H226: Flammable liquids and vapors
- Precautionary statements	P210: Keep away from sources of heat, sparks, open flame or hot surfaces. No smoking. P233: Keep the container tightly closed. P240: Grounding/equipotential bonding of vessel and receiving equipment. P241: Use electric material, ventilation or lighting explosion-proof. P242: Use only non-sparking tools. Take precautionary measures against electrostatic discharges. P243: Take precautionary measures against electrostatic discharge. P280: Wear gloves/goggles/protective mask. P303 + P361 + P353: In case of contact with skin (or hair) remove contaminated garments immediately. Rinse the skin with water or shower. P370 + P378: In case of fire use dry sand, dry chemical powder or alcohol-resistant foam to turn it off. P403 + P235: Store in a well-ventilated place. Keep in a cool place. P501: Remove the contents/container in an authorized waste disposal plant.
<b>Other dangers</b>	No specific dangers known, if the regulations/notes for storage and handling are considered.  May produce an allergic reaction. Contains: 2-ethylhexyl acrylate, 2-hydroxyethyl methacrylate.



### 3. Composition/Information on The components

Chemical identity of the substance	Common name or synonyms	CAS number	Impurities and additives	Percentage
Modified acrylic copolymer	---	---	--	75 – 85 %
Pigment	---	---	--	8 – 30 %
n-Butyl acetate	Acetic acid, butyl ester	123-86-4	--	15 – 20 %
Cyclohexanone	Cyclohexanone	108-94-1	--	2 – 4 %
Ethyl 3-Ethoxypropionate	EEP	763-69-9	--	2 – 4 %
Ethanol, 2-butoxy-, acetate	2- Butoxyethanol acetate	112-07-2	--	2 – 4 %

The range in the percentages is due to batch variation.

### 4. First Aid

<b>Skin Contact</b>	Remove contaminated clothing. Wash thoroughly with soap and water. If irritation develops, seek medical attention.
<b>Eye contact</b>	Wash affected eyes for at least 15 minutes under running water with eyelids held open. If irritation develops, seek medical attention.
<b>If inhaled</b>	If difficulties occur after vapor/aerosol has been inhaled, remove to fresh air and seek medical attention.
<b>If swallowed</b>	Rinse mouth and then drink plenty of water. Do not induce vomiting. Seek medical attention if necessary.
<b>Acute and chronic symptoms and important effects</b>	The most important symptoms and effects known are described in section 2 and 11.
<b>Indications for immediate medical care and special treatment</b>	Treat according to symptoms (decontamination, vital functions), no known specific antidote.

### 5. Fire measures

<b>Suitable extinguishing media</b>	Dry powder, foam.
<b>Unsuitable extinguishing media</b>	Pressurized water jet.
<b>Specific hazards of the substance</b>	Substance/product is a flammable liquid.
<b>Special measures for firefighting groups</b>	Self-contained breathing equipment for firefighting, and complete protective suit in case of fire.  The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.



**6. Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

Use personal protective clothing. Can release flammable vapors. Wind direction should be noted. Avoid all sources of ignition: heat, sparks, open flame. Use antistatic tools.

**Environmental precautions**

Prevent new leaks or spills if it can be done without risk. Do not let product enter the sewer system. Do not discharge into drains/surface waters/groundwater.

**Methods and materials for containment and cleaning of spills or leaks**

For large amounts: Pump off product.  
For residues: Pick up with suitable absorbent material. Dispose of absorbed material in accordance with regulations.

**7. Handling and storage**

**Safe Handling Precautions**

Avoid all sources of ignition: heat, sparks, open flame. Protection against fire and explosion: Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.

**Conditions for safe storage and incompatibilities**

Further information on storage conditions: Keep container tightly closed and in a cool place.

**8. Explosion controls/Personal Protection**

**Components with environmental limit values of professional exposure**

Component	No. CAS	Value (exposure)	Control parameter	Base
Cyclohexanone	108-94-1	TWA	20 ppm	ACGIH limit value (TLV), USA
		STEL	50 ppm	ACGIH limit value (TLV), USA
		TWA	50 ppm	Occupational exposure Limits (OSHA), USA UU – Table Z-1 limits for air pollutants
			200 mg/m <sup>3</sup>	
		TWA	25 ppm	Recommended exposure limits of NOISH, U.S.A.
			100 mg/m <sup>3</sup>	
Ethyl 3-Ethoxypropionate	763-69-9	PEL	25 ppm	Exposure limits of chemical contaminants allowed in California (Title 8, article 107)
			100 mg/m <sup>3</sup>	
		TWA	50 ppm	Professional exposure limit at Eastman Chemical Company: (12 2000)
n-Butyl acetate	123-86-4	STEL	100 ppm	Professional exposure limit at Eastman Chemical Company: (12 2000)
		PEL	150 ppm	OSHA PEL
			710 mg/m <sup>3</sup>	OSHA PEL
		STEL	150 ppm	ACGIH TLV
		TWA	50 ppm	ACGIH TLV

**Appropriate technical controls/ engineering measures**

Unavailable data.

**Personal protective equipment**

Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice.

- Eyes/Face

Safety glasses with side-shields. Wear face shield if splashing hazard exists.

- For the skin

Chemical resistant protective gloves.



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- Corposal The type of equipment must be chosen according to the concentration and the amount of hazardous substance to the specific place of work.
- Respiratory Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator.

**Environmental Exposure Control** Avoid leaks or spills if it can be done without risk. Do not let the product enter the sewer system.

### 9. Physical and chemical properties

<b>Physical state and appearance</b>	Liquid
<b>Color</b>	As marked on label
<b>Smell</b>	Acrylic-like
<b>Odor threshold</b>	No determined
<b>Hydrogen potential, PH</b>	No determined
<b>Melting Point/freezing point</b>	-78° C
<b>Starting point and boiling range</b>	126 °C (258.8 °F)
<b>Flash point</b>	Approx. 35° C
<b>Evaporation Rate</b>	No determined
<b>Flammability</b>	Flammable
<b>Upper/lower limits of flammability or explosiveness</b>	Up = 10.4 % (V) Lo = 3.0 % (V)
<b>Vapor pressure</b>	11.5mmHg (25° C)
<b>Vapor density</b>	No determined
<b>Relative density</b>	1.05 @ 20° C (68° F)
<b>Solubility</b>	Slightly soluble
<b>Partition coefficient</b>	No determined
<b>Spontaneous ignition temperature</b>	No determined
<b>Thermal decomposition</b>	Stable up to boiling point
<b>Viscosity</b>	20 000 Cps
<b>Molecular weight</b>	No determined
<b>VOC Content</b>	40 %
<b>Other data</b>	No more relevant information available.

### 10. Stability and reactivity

<b>Reactivity</b>	No hazardous reactions if stored and handled as prescribed/indicated. Oxidizing properties: not fire-propagating.
<b>Chemical stability</b>	The product is stable if stored and handled as prescribed/indicated.
<b>Possibility of dangerous reactions</b>	No hazardous reactions when stored and handled according to instructions. The product is chemically stable.
<b>Conditions to avoid</b>	Avoid extreme heat.



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### Incompatible materials

Oxidizing agents.

### Hazardous Decomposition Products

No hazardous decomposition products if stored and handled as prescribed/indicated. Thermal decomposition: Stable up to boiling point.

## 11. Toxicological information

### Information on probable ways of entry

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

### Symptoms related to physical, chemical and toxicological characteristics

No data available.

### Immediate, delayed, and chronic effects (short-term and long-run exposure)

No data available.

### Numerical toxicity measures

#### - Acute oral toxicity

Cyclohexanone:

- Oral DL50 – Averaged – 1.534 mg/Kg

Ethyl 3-Ethoxypropionate:

- Oral DL50 – Averaged – 4.309 mg/Kg

n-Butyl acetate:

- Type of value: ATE > 5,000 mg/kg

#### - Acute dermal toxicity

Cyclohexanone:

- Cutaneous LD50 – Rabbit – 794 – 3, 160mg/Kg

Ethyl 3-Ethoxypropionate:

- Dermal LD50 – Rabbit – 4.080 mg/Kg

n-Butyl acetate:

- Type of value: ATE > 5,000 mg/kg

#### - Acute inhalation toxicity

Cyclohexanone:

- LC50 Inhalation – Rat – 4 hr -> 6.2 mg/L

Ethyl 3-Ethoxypropionate:

- CL50 – averaged – > 998 ppm

n-Butyl acetate:

- Type of value: ATE > 20.0000 mg/l (Determined for vapor)
- Type of value: ATE > 5.0000 mg/l (Determined for mist)

### Interactive effects

No data available.

### Other information

None known.

### Corrosion/Skin Irritation:

Not irritating to skin.

### Serious eye injury/eye irritation

Not irritating to eyes.

### Respiratory or cutaneous sensitization

The chemical structure does not suggest a sensitizing effect.



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<b>Mutagenicity in germ cells</b>	No data available.
<b>Carcinogenicity</b>	No data available.
<b>Reproductive toxicity</b>	No data available.
<b>Specific systematic toxicity – single exposure</b>	No data available.
<b>Specific systematic toxicity – repeated exposures</b>	No data available.
<b>Aspiration Hazard</b>	No aspiration hazard expected.

### 12. Ecotoxicological information

<b>Toxicity</b>	At the present state of knowledge, no negative ecological effects are expected.  Fish toxicity Cyclohexanone: Data unavailable.  Ethyl 3-Etoxipropionato: LC50 – Fish – 90.9 mg/L – 96 H.  n-Butyl acetate: LC50 – Leuciscus idus – >100 mg/l – (96 h)  Toxicity to Daphnia and other invertebrate animals: Cyclohexanone: EC50 – Daphnia Magna (Sea Flea) – 820 mg/L – 24 h.  Ethyl 3-Etoxipropionato: EC50 – Oleander – 873mg/L – 48 H.  n-Butyl acetate: EC50 – Daphnia magna – > 100 mg/l – 48 h – (Screening (style of OECD 202), static)  Algae toxicity Cyclohexanone: Data unavailable.  Ethyl 3-Etoxipropionato: EC50 – Alga – > 114.86 mg/L – 72 H.  n-Butyl acetate: No data available.
<b>Persistence and Degradability</b>	The polymer component of the product is poorly biodegradable.
<b>Bioaccumulation potential</b>	At the present state of knowledge, no negative ecological effects are expected.
<b>Ground mobility</b>	No information available.
<b>Other adverse effects</b>	No information available.



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### 13. Information on product deletion

<b>Description of waste</b>	No data available.
<b>Information on safe handling</b>	Proceed with care as this product is flammable.
<b>Methods of elimination</b>	Must be disposed of or incinerated in accordance with the regulations promulgated by the local authorities.
<b>Disposal of contaminated containers</b>	Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers. Flammable vapors may exist in containers in which residues of this product remain.

### 14. Information on transportation

<b>No. UN</b>	1210
<b>UN official definition of transport</b>	Printing ink related material
<b>Class</b>	3
<b>Packaging Group</b>	III
<b>Environmental hazards</b>	No data available.
<b>Special precautions for the user</b>	CAUTION, flammable liquid.
<b>Bulk transport</b>	Does not apply.

### 15. Regulatory information

#### Federal Regulations

#### Registration status:

Chemical      DSL, CA      released / listed

#### Tag elements:

This product is classified and labeled according to the Globally Harmonized System (GHS).

#### National regulations:

This product is subject to classification according to the latest version of the Hazardous Substances Regulations.

### 16. Other information on the preparation and updating of safety data sheets

<b>More information</b>	The information and recommendations in this sheet are safely with, to our best knowledge and understanding, accurate to the date of your expedition. Nothing contained herein shall be deemed to create warranty, express or implied, and shall not establish legally valid contractual relationship. It is the user's responsibility to determine the applicability of this information and the suitability of the material or product for any particular purpose.
<b>Update date</b>	26/Jul/2018
<b>Next review rate</b>	No data available.
<b>Version</b>	01