Sigma Ink Inc.
12800 Brookprinter Place
Poway Ca, 92064

SAFETY DATA SHEET

1. Product and Company Identification

Product Name	Sigma PP Ink Series
Product Identifier	Sigma PP Ink Series
Recommended uses and restrictions	Printing inks
Manufacturer's data	Sigma Inks (USA) 12800 Brookprinter place, Poway, CA 92064 USA Phone: (888) 424-9300 Website: www.sigmainks.com Contact the distributor: www.printexusa.com
Emergency number	Chemtrec (USA): (800) 424-9300 Chemtrec (Outside USA): (703) 527-3887

2. Hazard identification

GHS-US classification

Flam. Liq. 4	H227	- Combustible liquid
Skin Irrit. 2	H315	- Causes skin irritation
Eye Irrit. 2A	H319	- Causes serious eye irritation
Carc. 1B	H350	- May cause cancer
STOT SE 3	H336	- May cause drowsiness or dizziness
Asp. Tox. 1	H304	- May be fatal if swallowed and enters airways
Aquatic Acute 1	H400	- Very toxic to aquatic life
Aquatic Chronic 2	H411	- Toxic to aquatic life with long lasting effects

Label elements

Identification of the substance or mix Sigma PP Ink Series

Hazard pictograms (GHS-US):

Signal word (GHS-US): Danger

Hazard statements (GHS-US):
H227 - Combustible liquid
H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H350 - May cause cancer
H400 - Very toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US):
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P261 - Avoid breathing dust, fume, gas, mist, spray, vapors
P264 - Wash hands thoroughly after handling

P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear eye protection, protective gloves, protective clothing
P301+P310 - If swallowed: Immediately call a doctor, a POISON CENTER
P302+P352 - If on skin: Wash with plenty of water
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - If exposed or concerned: Get medical advice/attention
P312 - Call a doctor, a POISON CENTER if you feel unwell
P321 - Specific treatment (see a doctor on this label)
P331 - Do NOT induce vomiting
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash it before reuse
P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO2), dry extinguishing powder, Water spray to extinguish
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

Other hazards

Burning produces obnoxious and toxic fumes. Ingestion may cause irritation of the mouth, throat, and stomach. Direct eye contact may cause slight or mild, transient irritation. May cause mild skin irritation.

3. Composition/information on components

Chemical identity of the substance	Common name or synonyms	CAS number	Impurities and additives	Percentage
Aromatic 100 Solvent Naphtha	Light aromatic	64742-94-6	--	30 – 60 %
Cumene		98-82-8	--	<.05 %
Cyclohexanone	Cyclohexyl ketone	108-94-1	--	1 – 2 %
Ethyl 3-ethoxypropionate	3-Ethoxypropanoic acid ethyl ester, Propanoic acid, 3-ethoxy-, ethyl ester	763-69-9	--	1 – 2 %
Solvent naphtha (petroleum), light aromatic	AB-9 / Solvent naphtha/Aromatic C9/Aromatic naphtha type I	64742-95-6	--	10 – 455 %

Xylene	Dimethyl benzene, Methyltoluene	1330-20-7	--	0.6 – 1.1 %
2-methoxy-1-methylethyl acetate	2-Propanol, 1-methoxy-, acetate	108-65-6	--	0.5 – 0.9 %
1,2,4-trimethylbenzene	Pseudocumol	95-63-6	--	>>> 1 %

The ranges in the percentages of composition are due batch variation.
This product may contain traces of cumene.

4. First Aid Measures

First-aid measures general:

Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

First-aid measures after skin contact:

Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Gently wash with plenty of soap and water, Get medical advice/attention. Get medical advice/attention. Specific treatment (see Consult a doctor/medical service on this label).

First-aid measures after eye contact:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Consult an eye specialist. Get medical advice/attention.

First-aid measures after ingestion:

Rinse mouth. Do NOT induce vomiting. Immediately call a poison center or doctor/physician.

Most important symptoms and effects, both acute and delayed:

Aspiration hazard - material may cause lung inflammation or damage if it enters lungs through vomiting or swallowing. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal. May cause respiratory irritation. Symptoms may include coughing, choking, and wheezing. May cause headache, nausea, dizziness, and other symptoms of central nervous system depression. Direct skin contact may cause slight or mild, transient irritation. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Direct eye contact may cause slight or mild, transient irritation.

5. Firefighting Measures

Extinguishing media:

Suitable extinguishing media	Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability	Flammable liquid and vapor. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Vapor can travel considerable distance and flashback to a source of ignition. Vapors are heavier than air and collect in confined and low-lying areas.
Flammability classification (OSHA 29 CFR 1910.106)	Flammable Liquids - Category 3
Hazardous combustion products	Carbon dioxide and carbon monoxide. Other unidentified organic compounds.

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters	Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. A full-body chemical resistant suit should be worn.
Special fire-fighting procedures	Evacuate personnel to safe areas. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. Dike for water control. Avoid release to the environment.

6. Accidental release Measures

Personal precautions, protective equipment, and emergency procedures

All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

Environmental precautions

Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. For large spills, dike the area to prevent spreading. Methods and material for containment and cleaning up remove all sources of ignition. Ventilate the area. Prevent further leakage or spillage if safe to do so. Dike for water control. Use only non-sparking tools and equipment in the clean-up process. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Contact the proper local authorities.

Methods and material for containment and cleaning up

Methods for cleaning up: Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

7. Handling and storage

Precautions for safe handling

Additional hazards when processed:	Handle empty containers with care because residual vapors are flammable. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Precautions for safe handling:	Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. No open flames. No smoking. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid breathing dust, fume, gas, mist, spray, vapors. Use only outdoors or in a well-ventilated area.

Hygiene measures: Wash hands thoroughly after handling

Conditions for safe storage, including any incompatibilities

Technical measures: Proper grounding procedures to avoid static electricity should be followed.

Storage conditions: Keep only in the original container in a cool, well ventilated place away from: Ignition sources, Incompatible materials. Keep in fireproof place. Keep container tightly closed.

Incompatible products: Strong bases. Strong acids.

Incompatible materials: Sources of ignition. Direct sunlight. Heat sources.

8. Exposure controls/Personal protection

Control parameters

Component	No. CAS	Value	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 200 mg/m³	Occupational exposure Limits (OSHA), USA UU – Table Z-1 limits for air pollutants
		TWA	25 ppm 100 mg/m³	Recommended exposure limits of NOISH, U.S.A.
		PEL	25 ppm 100 mg/m³	Exposure limits of chemical contaminants allowed in California (Title 8, article 107)
Xylene	1330-20-7	TWA STEL	100 ppm 150 ppm	
Cumene	98-82-8	TWA:	50 ppm	
Solvent Naphtha	64742-94-6	TWA	20 ppm	ACGIH limit value (TLV), USA

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Cyclohexanone	108-94-1	1,2-Cyclohexanediol	80 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		1,2-Cyclohexanediol	8 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

Exposure controls

Ventilation and engineering measures

Provide exhaust ventilation or other engineering controls to keep the airborne concentration of vapors below their respective threshold limit value. Use explosion-proof electrical and ventilating equipment.

Respiratory protection

Respiratory protection is required if the concentrations exceed the TLV. Use a NIOSH approved dust respirator if dust levels exceed exposure limits. Seek advice from respiratory protection specialists.

Skin protection

Wear protective gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Advice should be sought from glove suppliers.

Eye / face protection

Wear eye/face protection. Safety glasses with side-shields or chemical splash Goggles

Other protective equipment

Wear appropriate protective clothing to prevent skin contact, such as coveralls or long-sleeved shirt, long pants, and shoes and socks. An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required depending on workplace standards.

General hygiene considerations

Avoid breathing mist or vapors. Avoid contact with skin, eyes, and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse.

9. Physical and chemical properties

Physical state and appearance	Viscous Liquid
Color	See product specification
Smell	Characteristic
Odor threshold	Not determined.
Hydrogen Potential, pH	Not determined.
Melting point / freezing point	Not determined.
Starting point and boiling range	180 °C (356 °F)
Flashpoint	9.2 °C (48 °F)
Evaporation rate	Not determined.
Flammability	Not applicable.
Upper/lower limits of flammability or explosiveness	Lo: 0.7 vol % Up: 10.8 vol %
Vapor pressure	5 mmHg (6.7 hPa)
Steam density	Not determined.
Relative density	Not determined.
Solubility	Not miscible or difficult to mix
Partition coefficient	Not determined.

Spontaneous ignition temperature	Not determined.
Decomposition temperature	Not determined.
Viscosity	Not determined.
Molecular weight	Not determined.
VOC content	56 %
Other data	No further relevant information available.

10. Stability and reactivity

Reactivity	No additional information available
Chemical stability	Combustible liquid. May form flammable/explosive vapor-air mixture.
Possibility of hazardous reactions	Not established.
Conditions to avoid	Direct sunlight. Extremely high or low temperatures. Open flame. Overheating. Heat. Sparks.
Incompatible materials	Strong acids. Strong bases.
Hazardous decomposition products	Fume. Carbon monoxide. Carbon dioxide. May release flammable gases.

11. Toxicological information

Information on probable ways of entry

Symptoms related to physical, chemical, and toxicological characteristics	Information unavailable.
Immediate, delayed, and chronic effects (short-term and long-run exposure)	Information unavailable.

Numerical toxicity measures

- **Acute oral toxicity**

  Xylene
  DL50 (rat) – 5,800mg/Kg

  Aromatic 100
  DL50 (rat) - >5,000 mg/Kg

- **Acute dermal toxicity**

  Xylene
  DL50 (rabbit) – > 7,426 mg/Kg

  Aromatic 100
  DL50 (rabbit) – > 5,000 mg/Kg

- **Acute inhalation toxicity**

  Xylene
  CL50 (rat) – 76.0 mg/L – 4 h

  Toluene
  CL50 (rat) – 28.1 mg/L – 4 h

  Aromatic 100
  CL50 (rat) – >21 mg/L – 4 h

Interactive effects	Information unavailable.

Other information	Information unavailable.
Skin irritation/corrosion **Serious eye injury/eye irritation**	Xylene It irritates the eyes – rabbit – 24 h. Aromatic 100 It does not irritate the eyes – rabbit.
Respiratory or cutaneous sensitization	Aromatic 150 It does not produce sensitization – guinea pig. Cyclohexanone It does not produce sensitization – guinea pig.
Mutagenicity in germ cells	Xylene - Genotoxicity in vitro: Essay of genetic mutation of cells of mammals Method: Guide for proofs 476 of the Organization for the Cooperation and the Economic Development. Result: negative Proof of Love Method: Guidelines of essay 471 of the OECD Result: negative Proof of aberration chromosomal in vitro Method: Guide for proofs 473 of the Organization for the Cooperation and the Economic Development. Result: negative
Carcinogenicity	Information is not available.
Reproductive Toxicity	- Effects in the fertility: Species: rat, male Road of application: Oral Dose: 0, 5000, 10000 mg/L Frequency of the treatment: 7 days / week General toxicity parents: LOAEL: 10,000 Fertility: 10,000
Specific systematic toxicity – single exposure	By Inhalation attacks the system nervous central. It can cause somnolence or vertigo. The substance or mix classifies like toxic specific of organs target, only exhibition, category 3 with effects narcotics.
Specific systematic toxicity – repeated exposures	By inhalation attacks the system auditory, Eyes. It can prejudice to determinate organs by prolonged exhibition or repeated. The substance or mix classifies like toxic specific of organs target, exhibition repeated, category 2.

Aspiration Hazard	Toxicity by aspiration - Category 1. The symptoms by overexposure can be headache, vertigo, tiredness, nauseas and vomits. In concentrations, substantially above the value TLV, can produce effects narcotics. The dissolvent can degrease the skin.

12. Ecotoxicological information

Toxicity

ACUTE AQUATIC TOXICITY:
Toxic for the aquatic organisms.

CHRONIC AQUATIC TOXICITY:
Toxic for the aquatic organisms, with durable harmful effects.

Xylene

- Toxicity for fish:
  CL50 (Oncorhynchus mykiss (Rainbow Trout)): 6,100 mg/l
  Time of exhibition: 48 h.

- Toxicity for daphnia and other aquatic invertebrates:
  CE50 (Daphnia magna (Flea of big sea)): 7,630 mg/l
  Time of exhibition: 48 h.

Persistence and degradability

Xylene
Biodegradability: Easily biodegradable.

Bioaccumulation Potential

Aromatic 100
Coefficient of distribution n-octanol/water: log Pow: -0.24.

Aromatic 150
Coefficient of distribution n-octanol/water: log Pow: 1.82.
Bioaccumulation: Fish
Factor of bioconcentration (FBC): 15

Ground mobility

No information available.

Other adverse effects

No information available.

13. Disposal Consideration

Waste disposal recommendations:

Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

Additional information:

Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials:

Avoid release to the environment. Hazardous waste due to toxicity.

14. Transport Information

No. UN	1210
Official definition of transport of the UN	Printing ink related material
Class	3
Group of container/packaging	III
Environmental risks	No data available.
Special cautions for the user	No data available.
Transport to gravel	Not applicable.

15. Regulatory information

Disposals specify

SARA 304 extremely dangerous Substances Quantity Reportable
This material does not contain any component in the section 304 EHS RQ.

SARA 311/312 Dangers
Danger of Fire
Acute danger for the Health
Danger for the Chronic Health

SARA 302
This material does not contain chemical products subjects to the requirements reported by SARA Title III, section 302.

SARA 313
The following components are subject to the levels of reference established by SARA Title III, Section 313:

Dangers OSHA
Flammable liquid, irritant moderated in contact with the eyes, teratogen, danger for the reproduction, toxicity specifies only, toxic specific in determinate organs – only exhibition, specific toxicity in determinate organs – exhibitions repeated.

WHMIS Classification
B2: flammable Liquid
D2To: Material Very Toxic Causing Other Toxic Effects
D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Record for the Right to Know Community and of Planning of Emergencies

CERCLA Quantity Reportable

Law of the Clean Air

The (The) following(s) product(s) chemical(s) are cataloged like HAP according to the Record of the Clean Air of the USA Section 12 (40 CFR 61):

1.7338 %

This product does not contain any chemical product that appear in the Record of Clean Air of the USA Section 112(r) for the Prevention of Accidental Release (40 CFR 68.130, Sub-part F).

(The) following(s) product(s) chemical(s) enumerates (n) in the Record of Clean Air of the USA Section 111 SOCMI COVs intervals or finals (40 CFR 60.489):

108-94-1	Cyclohexanone	96.9318 %
64742-95-6	Aromatic 100	1.3344 %

Law of the Clean Water

The following Dangerous Substances enumerate in the Law of the Clean Water of USA, Section 311 of the table 116.4To:
8

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

Additional information

The information and recommendations in this leaf security with, to our best know and understand, precise to the date of his expedition. At all the here included will have to be considered to create guarantee, expresses or implicit and will not establish contractual relation legally validates. It is responsibility of the user determine the applicability of this information and the suitability of the material or product for any purpose.