



Sigma Inks
12113 Kirkham Road
Poway, CA 92064
USA

Safety Data Sheet (SDS)

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03.

Issue date 06/25/2015

Reviewed on 06/25/2015

1 Identification

- **Product identifier**
- **Trade name:** MP-105
- **Product number:** 4872
- **CAS Number:**
108-94-1
- **EC number:**
203-631-1
- **Index number:**
606-010-00-7
- **Relevant identified uses of the substance or mixture and uses advised against**
- **Product description** Synonyms: Pimelic ketone; Cyclohexyl ketone; Ketoexamethylene
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Sigma Inks (US)
12113 Kirkham Road
Poway, CA 92064 USA
Phone: (888) 424-9300
Website: www.sigmainks.com or contact distributor: www.printexusa.com
- **Emergency telephone number:**
Chemtrec (US): (800) 424-9300
Chemtrec (Outside US): (703) 527-3887 (Collect calls accepted)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 3 H226 Flammable liquid and vapor.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H335 May cause respiratory irritation.

Eye Irrit. 2B H320 Causes eye irritation.

- **Label elements**

- **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS02



GHS07

- **Signal word** Warning

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· **Hazard-determining components of labeling:**

Cyclohexanone

· **Hazard statements**

Flammable liquid and vapor.

Harmful if inhaled.

Causes skin and eye irritation.

May cause respiratory irritation.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Avoid breathing dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wear protective gloves / eye protection / face protection.

Wear protective gloves.

Ground/bond container and receiving equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Wash thoroughly after handling.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Call a poison center/doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO2, powder or water spray.

If on skin: Wash with plenty of water.

Take off contaminated clothing and wash it before reuse.

Store locked up.

Store in a well-ventilated place. Keep container tightly closed.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Unknown acute toxicity:**

0 percent of the mixture consists of ingredient(s) of unknown toxicity.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 2

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = 2

Fire = 2

Reactivity = 0

· **Hazard(s) not otherwise classified (HNOC):** None known

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3 Composition/information on ingredients

- **Chemical characterization: Substance**
- **CAS No. Description**
108-94-1 Cyclohexanone
- **Identification number(s)**
- **EC number:** 203-631-1
- **Index number:** 606-010-00-7

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- **After inhalation:**
Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist.
In case of unconsciousness, place patient securely on side position for transportation.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation occurs, consult a doctor.
- **After eye contact:**
Rinse opened eye for at least 15 minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If swallowed and symptoms occur, consult a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed:**
Prolonged or repeated exposure may cause skin rash or dermatitis. Damage to the liver and kidneys may occur.
Inhalation symptoms may include coughing, shortness of breath. High concentrations have a narcotic effect.
Ingestion may cause abdominal pain and/or nausea. Aspiration into lungs can produce severe lung damage and is a medical emergency.
Skin Contact symptoms include redness, itching, and pain. May be absorbed through the skin with possible systemic effects.
Eye Contact may cause corneal injury.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**
Combustible liquid. Vapors can travel to a source of ignition and flash back.
Explosive mixtures may occur at temperatures at or above flashpoint.
- **Advice for firefighters**
- **Protective equipment:**
Mouth respiratory protective device.
As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

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6 Accidental release measures

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

Wear protective equipment. Keep unprotected persons away.

· **Environmental precautions:**

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**

Absorb with liquid-binding material (i.e. sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

Dispose of the collected material according to regulations.

· **Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

· **Handling:**

· **Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

· **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect from heat.

Protect against electrostatic charges.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:**

Store in a cool, dry place away from sparks and flame.

Store in a well ventilated place.

Keep container tightly closed.

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:**

Keep receptacle tightly sealed.

Protect from heat and direct sunlight.

· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see section 7.

· **Control parameters**

· **Components with occupational exposure limits:**

108-94-1 Cyclohexanone

PEL Long-term value: 200 mg/m³, 50 ppm

REL Long-term value: 100 mg/m³, 25 ppm
Skin

TLV Long-term value: 50 mg/m³, 20 ppm
Skin

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· Ingredients with biological limit values:	
108-94-1 Cyclohexanone	
BEI	80 mg/L urine end of shift at end of workweek 1.2-Cyclohexanediol with hydrolysis (nonspecific, semi-quantitative)
	8 mg/L urine end of shift Cyclohexanol with hydrolysis (nonspecific, semi-quantitative)

· **Additional information:**

Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
The lists that were valid during the creation of this SDS were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower.
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing and wash before reuse.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

· **Breathing equipment:**



NIOSH/OSHA or EN approved respiratory protection is recommended for use in airborne concentrations exceeding exposure limits.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Select glove material based on penetration times, rates of diffusion and degradation.

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· **Eye protection:**



Tightly sealed goggles

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· **Body protection:**



Protective work clothing



Boots

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:

Liquid

Color:

Light yellow

· **Odor:**

Acetone-like

Peppermint

· **Odor threshold:**

Not determined.

· **pH-value:**

Not determined.

· **Change in condition**

Melting point/Melting range:

ca. - 26 °C

Boiling point/Boiling range:

153 - 156 °C (307 - 313 °F)

· **Flash point:**

43 °C (109 °F)

· **Flammability (solid, gaseous):**

Not applicable.

· **Ignition temperature:**

420 °C (788 °F)

· **Decomposition temperature:**

Not determined.

· **Auto igniting:**

Not determined.

· **Danger of explosion:**

Product is not explosive. However, formation of explosive air/vapor mixtures are possible.

· **Explosion limits:**

Lower:

1.3 Vol %

Upper:

9.4 Vol %

· **Vapor pressure @ 20 °C (68 °F):**

5 hPa (4 mm Hg)

· **Density @ 20 °C (68 °F):**

0.95 g/cm³ (7.928 lbs/gal)

· **Relative density**

Not determined.

· **Vapor density**

Not determined.

· **Evaporation rate**

Not determined.

· **Solubility in / Miscibility with**

Water @ 20 °C (68 °F):

80 g/l

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

Dynamic:

Not determined.

Kinematic:

Not determined.

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Organic solvents: 100.0 %
VOC content: 100.0 %
 950.0 g/l / 7.93 lb/gl
 · **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability** Stable under normal conditions.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** Heat, flame and ignition sources.
- **Incompatible materials:** Strong oxidizing agents.
- **Hazardous decomposition products:** Carbon dioxide and carbon monoxide

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

108-94-1 Cyclohexanone

Oral	LD50	1535 mg/kg (rat)
Dermal	LD50	948 mg/kg (rabbit)
Inhalative	LC50/4 h	8000 mg/l (rat)
	LC50/96 hours	491.475 mg/l (Trout)
	LC50/48 hrs	257.42 mg/l (daphnia)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**
 Group 1 - Carcinogenic to humans
 Group 2A - Probably carcinogenic to humans
 Group 2B - Possibly carcinogenic to humans
 Group 3 - Not classifiable as to its carcinogenicity to humans
 Group 4 - Probably not carcinogenic to humans

108-94-1	Cyclohexanone	3
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· **NTP (National Toxicology Program)**

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

108-94-1 Cyclohexanone

EC50	137.349 mg/l (Green algae) (96 hr)
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· **Persistence and degradability** No further relevant information available.



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- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:** Not known to be hazardous to water.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Conditions of use may cause this material to become a hazardous waste as defined by local, state or federal guidelines. Use appropriate treatment, transporters and disposal sites.
Observe all federal, state and local environmental regulations when disposing of this material.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN1915
- **UN proper shipping name**
- **DOT** Cyclohexanone
- **ADR** UN1915 Cyclohexanone
- **IMDG, IATA** CYCLOHEXANONE
- **Transport hazard class(es)**

· **DOT**



- **Class** 3 Flammable liquids
- **Label** 3

· **ADR**



- **Class** 3 (F1) Flammable liquids
- **Label** 3

· **IMDG, IATA**



- **Class** 3 Flammable liquids



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- **Label** 3
 - **Packing group**
 - **DOT, ADR, IMDG, IATA** III
 - **Environmental hazards:** Not applicable.
 - **Special precautions for user** Warning: Flammable liquids
 - **Danger code (Kemler):** 30
 - **EMS Number:** F-E,S-D
 - **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
 - **Transport/Additional information:**
 - **DOT**
 - **Quantity limitations** On passenger aircraft/rail: 60 L
On cargo aircraft only: 220 L
-
- **ADR**
 - **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml
-
- **IMDG**
 - **Limited quantities (LQ)** 5L
 - **Excepted quantities (EQ)** Code: E1
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 1000 ml
 - **UN "Model Regulation":** UN1915, Cyclohexanone, 3, III

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

<ul style="list-style-type: none"> · Section 355 (extremely hazardous substances): 	Substance is not listed.
<ul style="list-style-type: none"> · Section 313 (Specific toxic chemical listings): 	Substance is not listed.
<ul style="list-style-type: none"> · TSCA (Toxic Substances Control Act): 	Substance is listed.
<ul style="list-style-type: none"> · California Proposition 65 	
<ul style="list-style-type: none"> · Chemicals known to cause cancer: 	Substance is not listed.
<ul style="list-style-type: none"> · Chemicals known to cause reproductive toxicity for females: 	Substance is not listed.
<ul style="list-style-type: none"> · Chemicals known to cause reproductive toxicity for males: 	Substance is not listed.
<ul style="list-style-type: none"> · Chemicals known to cause developmental toxicity: 	Substance is not listed.

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· **Carcinogenic categories**

· EPA (Environmental Protection Agency)	
Substance is not listed.	

· TLV (Threshold Limit Value established by ACGIH)	
108-94-1 Cyclohexanone	A3

· NIOSH-Ca (National Institute for Occupational Safety and Health)	
Substance is not listed.	

· **GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS07

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Cyclohexanone

· **Hazard statements**

- Flammable liquid and vapor.
- Harmful if inhaled.
- Causes skin and eye irritation.
- May cause respiratory irritation.

· **Precautionary statements**

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Use explosion-proof electrical/ventilating/lighting/equipment.
- Avoid breathing dust/fume/gas/mist/vapors/spray.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves / eye protection / face protection.
- Wear protective gloves.
- Ground/bond container and receiving equipment.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Wash thoroughly after handling.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Specific treatment (see supplementary first aid instructions on this Safety Data Sheet).
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Call a poison center/doctor if you feel unwell.
- If skin irritation occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- In case of fire: Use for extinction: CO2, powder or water spray.
- If on skin: Wash with plenty of water.
- Take off contaminated clothing and wash it before reuse.
- Store locked up.
- Store in a well-ventilated place. Keep container tightly closed.
- Store in a well-ventilated place. Keep cool.



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Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

Non-Regulated Material

· **State Right to Know**

None of the ingredients are listed

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

The information and recommendations in this safety data sheet are, to the best of our knowledge, accurate as of the date of issue. Nothing herein shall be deemed to create warranty, expressed or implied, and shall not establish a legally valid contractual relationship. It is the responsibility of the user to determine applicability of this information and the suitability of the material or product for any particular purpose.

· **Date of preparation / last revision** 06/25/2015 / -

· **Abbreviations and acronyms:**

- ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road
- ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- Flam. Liq. 3: Flammable liquids, Hazard Category 3
- Acute Tox. 4: Acute toxicity, Hazard Category 4
- Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
- Eye Irrit. 2B: Serious eye damage/eye irritation, Hazard Category 2B
- STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

· *** Data compared to the previous version altered.**

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