Sigma Ink Inc.
12800 Brookprinter Place
Poway Ca, 92064

SAFETY DATA SHEET

1. Product and Company Identification

Name of the product	MP-200
Identifier of the product	MP-200 Hardener
Uses recommended and restrictions	Hardener for Printing Ink
Data of the manufacturer	Sigma Inks (USA) 12800 Brookprinter place, Poway, CA 92064 USA Telephone: (888) 424-9300 Website: www.sigmainks.com Contact to the distributor: www.printexusa.com
Number of emergency	Chemtrec (And.Or.): (800) 424-9300 Chemtrec (Out of USA.): (703) 527-3887

2. Hazards Identification

Classification of the product

Acute To.	4 (Inhalation - mist)	Acute toxicity
Resp. Sens.	1	Respiratory sensitization
Skin Sens.	1	Skin sensitization
STOT SE	3(irritating to respiratory system)	Specific target organ toxicity — single exposure

Label elements

Identification of the substance or mix MP-200 Hardener

Pictogram:

Signal Word: Danger

Hazard Statement:

H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317	May cause an allergic skin reaction.
H335	May cause respiratory irritation.

Precautionary Statements (Prevention):

P280	Wear protective gloves.
P271	Use only outdoors or in a well-ventilated area.
P260	Do not breathe mist or vapor.
P284	In case of inadequate ventilation wear respiratory protection.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary Statements (Response):

P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
P333 + P311	If skin irritation or rash occurs: Call a POISON CENTER or Doctor/physician.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified
No specific dangers known if the regulations/notes for storage and handling are considered.

Emergency overview
WARNING:
May cause sensitization by skin contact.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
HARMFUL IF INHALED.
Use with local exhaust ventilation.
Wear protective clothing.

3. Composition / Information on Ingredients

Chemical identity of the substance	Common or synonymous name	Number CAS	Impurities and additives	Percentage
1,6 Hexamethylene Homopolymer diisocyanate	Propanoic acid, 3-ethoxy-, ethyl ester	28182-81-2	-	70– 90 %
2-metoxi-1-acetate of methyl ethyl	2-Propanol, 1-methoxy-, acetate	108-65-6	-	15– 35 %

4. First-Aid Measures

Description of first aid measures

General advice:
Immediately remove contaminated clothing.

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:
Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Most important symptoms and effects, both acute and delayed
Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11. Further important symptoms and effects are so far not known.

Indication of any immediate medical attention and special treatment needed
Note to physician
Treatment:
Inhale corticosteroid dose aerosol. Treat according to symptoms (decontamination, vital functions), no known specific antidote, administer corticosteroid dose aerosol to prevent pulmonary edema.

5. Fire-Fighting Measures

Extinguishing media
Suitable extinguishing media:
dry powder, foam

Special hazards arising from the substance or mixture
Hazards during fire-fighting: harmful vapors
Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters
Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
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.

Impact Sensitivity:
Remarks:
Based on the chemical structure there is no shock-sensitivity.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Environmental precautions
This product is regulated by CERCLA ('Superfund').

Methods and material for containment and cleaning up
Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling
Keep away from sources of ignition - No smoking.
Protection against fire and explosion: Avoid all sources of ignition: heat, sparks, and open flame.

Conditions for safe storage, including any incompatibilities
Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

8. Exposure Controls/Personal Protection

Control Parameter

Component	No. CAS	Value	Control Parameter	Base
1,6-hexamethylen diisocianato homopolimer	28182-81-2	TWA	.0050 ppm	Límit umbral of ACGIH Values (TLV)
2-metoxi-1-acetate methyethyl	108-65-6	STEL	100 ml/m3	

Personal protective equipment

Respiratory protection:
Respiratory protection in case of vapor/aerosol release. Combination filter for gases/vapors of organic compounds and solid and liquid particles.

Eye protection:
Tightly fitting safety goggles (chemical goggles) and face shield.

Body protection:
Impermeable protective clothing

General safety and hygiene measures:
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

Form:	Viscous liquid
Odor:	Caracteristic
Color:	colorless to slightly yellow
pH value:	not applicable
Melting point:	approx. -70 °C
Boiling range:	300 - 355 °C
Flash point:	208 °C
Flammability:	not flammable
Lower explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard if the product is used appropriately and in accordance with the intended use.
Upper explosion limit:	As a result of our experience with this product and our knowledge of its composition we do not expect any hazard if the product is used appropriately and in accordance with the intended use.
Autoignition:	443 °C
Vapor pressure:	0.0001 mbar (20 °C)
Density:	1.166 g/cm3 (20 °C)
Relative density:	1.166 (20 °C)
Vapor density:	not determined
Partitioning coefficient n-octanel/water (log Pow):	9.81
Self-ignition temperature:	Based on its structural properties the product is not classified as self- igniting.
Thermal decomposition:	125 °C, 550 J/g 405 °C, > 130 kJ/kg 20 - 145 °C, 0 kJ/kg
Viscosity, dynamic:	2.5 - 4 Pas (23 °C)
Solubility in water:	Reacts with water.
Miscibility with water:	Reacts with water.
Evaporation rate:	not determined

10. Stability and Reactivity

Reactivity
Oxidizing properties:
Based on its structural properties the product is not classified as oxidizing.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
Reacts with alcohols. Reacts with amines. Reacts with substances which contain active hydrogen.
Reacts with water, with formation of carbon dioxide. The formation of gaseous decomposition products builds up pressure in tightly closed containers.

Conditions to avoid
Avoid moisture. See MSDS section 7 - Handling and storage.

Incompatible materials
Alcohols, amines

Hazardous decomposition products
Decomposition products:
Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
125 °C, 2.5 K/min (DSC (DIN 51007))
405 °C, 2.5 K/min (DSC (DIN 51007))
20 - 145 °C (Warm storage test)
No exothermic decomposition within the mentioned temperature range.

11. Toxicological information

Primary routes of exposure
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.

Acute Toxicity/Effects
Acute toxicity
Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Of moderate toxicity after short-term inhalation.

Oral
Type of value: LD50
Species: rat (female)
Value: > 2,500 mg/kg (OECD Guideline 423)
No mortality was observed.

Inhalation
Type of value: LC50
Species: rat (male/female)
Value: 0.467 mg/l (OECD Guideline 403)
Exposure time: 4 h
The test result applies only to the substance transferred into repairable aerosol (particles < 20 µm).

Dermal
Type of value: LD50
Species: rat (male/female)
Value: > 2,000 mg/kg

Assessment other acute effects
Assessment of STOT single: Causes temporary irritation of the respiratory tract.

Irritation / corrosion
Assessment of irritating effects: May cause slight irritation to the skin. May cause slight irritation to the eyes.

Skin
Species: rabbit
Result: Slightly irritating.
Method: OECD Guideline 404

Eye
Species: rabbit
Result: Slightly irritating.
Method: OECD Guideline 405

Sensitization
Assessment of sensitization: Caused skin sensitization in animal studies.

Guinea pig maximization test
Result: sensitizing
Sensitizing effect in animal tests

Aspiration Hazard
No aspiration hazard expected.

Chronic Toxicity/Effects
Repeated dose toxicity
Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation.

Genetic toxicity
Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in mammalian cell culture.

Carcinogenicity
Assessment of carcinogenicity: Study scientifically not justified.

Reproductive toxicity
Assessment of reproduction toxicity: Study scientifically not justified.

Teratogenicity
Assessment of teratogenicity: Study scientifically not justified.

Symptoms of Exposure
The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

12. Ecological Information

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:	There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. The product may hydrolyse. The test result maybe partially due to degradation products.
Toxicity to fish	LC0 (96 h) >= 100 mg/l, Brachydanio rerio (OECD 203; ISO 7346; 92/69/EEC, C.1, static) The product may hydrolyse. The test result

	maybe partially due to degradation products. The product has low solubility in the test medium. An evaluate has been tested. Nominal concentration.
Aquatic invertebrates	EL50 (48 h) 127 mg/l, Daphnia magna (Directive 92/69/EEC, C.2, static)
Nominal concentration. The product may hydrolyse. The test result maybe partially due to degradation products.	
Aquatic plants	EC50 (72 h) > 1,000 mg/l (growth rate), Scenedesmus subspicatus (OECD Guideline 201, static) Nominal concentration. The product may hydrolyze. The test result maybe partially due to degradation products.
Chronic toxicity to fish	Study not necessarily due to exposure considerations.
Chronic toxicity to aquatic invertebrates	Study not necessarily due to exposure considerations.
Assessment of terrestrial toxicity	Study not necessarily due to exposure considerations.
Microorganisms/Effect on activated sludge	
Toxicity to microorganisms	OECD Guideline 209 static activated sludge of a predominantly domestic sewage/EC20 (3 h): 880 mg/l Nominal concentration. The product may hydrolyze. The test result maybe partially due to degradation products.
Persistence and degradability	
Assessment biodegradation and elimination (H2O)	Poorly biodegradable. The product is unstable in water. The elimination data also refer to products of hydrolysis.
Elimination information	1 % BOD of the ThOD (28 d) (OECD 301D; EEC 92/69, C.4-E) (aerobic, activated sludge, domestic, non-adapted)
Assessment of stability in water In contact with water the substance will hydrolyze rapidly.	Information on Stability in Water (Hydrolysis) t1/2 < 1 h, (OECD Guideline 111, pH 4) t1/2 < 1 h, (OECD Guideline 111, pH 7) t1/2 < 1 h, (OECD Guideline 111, pH 9)
Bioaccumulative potential	
Assessment bioaccumulation potential	Significant accumulation in organisms is not to be expected. The product has not been tested. The statement has been derived from the structure of the product.
Bioaccumulation potential	Bioconcentration factor: 367.7 (calculated)

	Analogous: Assessment derived from products with similar chemical character.

Mobility in soil

Assessment transport between environmental compartments	The substance will not evaporate into the atmosphere from the water surface. No data available.

Additional information

Other ecotoxicological advice:	Do not release untreated into natural waters. The local regulations on waste-water treatment must be followed.

13. Disposal considerations

Waste disposal of substance:

Dispose of in a licensed facility. Do not discharge into waterways or sewer systems without proper authorization.

Container disposal:

Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

No. UN	1263
Official definition of transport of the UN	Paint Related Material
Class	3
Group of container/packaging	III
Environmental risks	No applicable.
Special cautions for the user	No data available.
Transport in Bulk	No applicable.

15. Regulatory Information

Specific regulation/legislation on safety, health and environment for substance or mixture.

SARA 355 (substances extremely dangerous)
None of the ingredients are listed

SARA 313
None of the ingredients are listed

TSCA (Law of Control of Toxic Substances)
108-65-2 2-metoxy-1-acetate of methyl ethyl

Proposition 65.
Chemists that knows that they cause cancer
None of the ingredients are listed

Chemists that knows that they cause reproductive toxicity in women
None of the ingredients are listed.

Chemists that knows that cause reproductive toxicity in humans
None of the ingredients are Listed.

Chemists that knows that causing developing toxicity
None of the ingredients are listed

Categories cancerogenic

EPA (Agency of environmental Protection)
Any of the ingredients this enlisted.

TLV (Value Limit of Threshold Established by ACGIH)

77-58-7 Dibutyltin Dilaurate

NIOSH-Ca (National institute for the Health and Labor Security)
Any of the ingredients this enlisted.

National Regulation
The product is subject to being classified according to the latest version of regulation on hazardous substances

State right to know
All ingredients are listed.

Chemical safety assessment:
A chemical safety assessment has not yet been done it.

16. Another information

Additional information

The information and recommendations in this safety sheet 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.