Safety Data Sheets

1. Identification

Product Name	: UV ink F-200 Yellow
Order No.	: SPC-0516Y
General Use	: Ink for ink jet printer
Product Description	: UV Inkjet Ink
SDS Number	: 037-U040552
Manufacture	
Company Name	: Mimaki Engineering Co., Ltd.
Address	: 2182-3 Shigeno-otsu, Tomi-shi, Nagano 389-0512 JAPAN
Telephone No.	: +81-268-64-2413
Importer / Distributor Established in USA	
Company Name	: MIMAKI USA, INC.
Address	: 150 Satellite Boulevard, suite A, Suwanee, Georgia 30024, U.S.A.
Telephone No.	: +1-678-730-0170
Emergency Telephone No.	: +1 866 928 0789 (within United States only, Toll free) +1 215 207 0061

2. Hazards Identification

[GHS Classification]

Physical Hazards

Flammable Liquids	: Not classified

Health Hazards

Acute Toxicity – Oral	: Category 4
Skin Corrosion / Irritation	: Category 2
Eye Damage / Irritation	: Category 2A
Sensitization – Skin	: Category 1
Carcinogenicity	: Category 1A
Toxic to Reproduction	: Category 2
Specific Target Organ Toxicity (Repeated Exposure)	: Category 2 (kidney, urinary tract, skin)

The above list does not include category being non-classifiable or not-applicable.

Safety Data Sheets

[GHS Label Elements]

Symbol

Signal Word

Danger

Hazard Statements

H302 Harmful if swallowed
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H319 Causes serious eye irritation
H350 May cause cancer
H361 Suspected of damaging fertility or the unborn child
H373 May cause damage to organs through prolonged or repeated exposure (kidney, urinary tract, skin)

Precautionary Statements

[Prevention]

P201 Obtain SDS (Safety Data Sheet) and printer's operation manual before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe gas/mis.
P264 Wash hands and eyes thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

[Response]

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
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.
P314 Get medical advice/attention if you feel unwell.
(P301+)P330 (IF SWALLOWED:) Rinse mouth.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash before re-use.

[Storage]

P405 Store locked up.

[Disposal]

P501 Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).

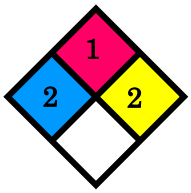
[Hazards not otherwise classified]

17% of the mixture consists of ingredients of unknown acute oral toxicity.

44% of the mixture consists of ingredients of unknown acute dermal toxicity.

NFPA Rating (scale 0 – 4)

Health = 2
Flammability = 1
Instability = 2
Special = None



3. Composition / Information on Ingredients

No	Chemical Name	Wt%	CAS No.
1	ISOOCTYL ACRYLATE	15 - 25	29590-42-9
2	ISOBORNYL ACRYLATE	15 - 25	5888-33-5
3	TETRAHYDROFURFURYL ACRYLATE	15 - 25	2399-48-6
4	1,6-HEXANEDIOL DIACRYLATE	1 - 10	13048-33-4
5	AMINE MODIFIED ACRYLATE OLIGOMER	1 - 10	Trade Secret
6	ALIPHATIC URETHANE ACRYLATE	1 - 10	Trade Secret
7	BENZOPHENONE	1 - 10	119-61-9
8	2,4,6-TRIMETHYLBENZOYLDIPHENYL PHOSPHINE	1 - 10	75980-60-8
9	NICKEL, 5,5'-AZOBIS-2,4,6(1H,3H,5H)-PYRIMIDINETRIONE COMPLEXES	1 - 5	68511-62-6
10	MELAMINE	0 - 5	108-78-1
11	TETRAHYDROFURFURYL ALCOHOL	< 0.5	97-99-4

*The specific chemical identity and/or exact percentage (concentration) of this composition has been withheld as a trade secret.

4. First Aid Measures

Inhalation : Remove person to fresh air. If you feel unwell, get medical attention.

Eye Contact : Immediately flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. Get medical attention.

Skin Contact : Immediately wash with soap and water. Remove contaminated clothing and wash before reuse. If signs/symptoms develop,get medical attention.

Ingestion : Rinse mouth. If you feel unwell, get medical attention.

Most important symptoms and effects, both acute and delayed	: See Section 11.1. Information on toxicological effects.
Indication of Immediate Medical Attention and Special Treatment Needed, If Needed	: Not applicable.

5. Fire Fighting Measures

Flammable Properties	: Flash point >200° F
Extinguishing Media	: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.
Special Hazards Arising from the Chemical	: Closed containers exposed to heat from fire may build pressure and explode.
Hazardous Combustion Products	: Carbon monoxide, Carbon dioxide, Oxides of Nitrogen (During Combustion)
Special protective actions for fire-fighters	: Water may not effectively extinguish fire; however, it should be used to keep fire-exposed containers and surfaces cool and prevent explosive rupture.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures	: Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Warning! A motor could be an ignition source and could cause flammable gases or vapors in the spill area to burn or explode. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.
Environmental precautions	: Avoid release to the environment. For larger spills, cover drains and build dikes to prevent entry into sewer systems or bodies of water.

Methods and material for containment and cleaning up	: Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with an appropriate solvent selected by a qualified and authorized person. Ventilate the area with fresh air. Read and follow safety precautions on the solvent label and SDS. Seal the container. Dispose of collected material as soon as possible.

7. Handling and Storage

Precautions for Safe Handling	: Avoid skin contact with hot material. For industrial or professional use only. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment. Wash contaminated clothing before reuse. Avoid contact with oxidizing agents (eg. chlorine, chromic acid etc.) Use personal protective equipment (gloves, respirators, etc.) as required.
Conditions for Safe Storage, including any Incompatibilities	: Keep cool. Protect from sunlight. Store away from heat. Store away from oxidizing agents.

8. Exposure Controls / Personal Protection

Exposure Limit Values	: If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS No.	Agency	Limit type	Additional Comments
MELAMINE	108-78-1	AIHA	TWA(inhalable particulates): 10mg/m³; TWA(respirable particles):5 mg/m³	
BENZOPHENONE	119-61-9	AIHA	TWA:0.5 mg/m³	
1,6-HEXANEDIOL DIACRYLATE	13048-33-4	AIHA	TWA:1 mg/m³ (0.11 ppm)	Dermal Sensitizer
TETRAHYDROFURFURYL ACRYLATE	2399-48-6	Manufacturer determined	TWA:0.1 ppm (0.64mg/m³); STEL:0.3 ppm (1.91mg/m³)	
ISOOCTYL ACRYLATE	29590-42-9	AIHA	TWA:37.5 mg/m³ (5 ppm)	
		Manufacturer determined	TWA:5 ppm	
NICKEL, INSOLUBLE COMPOUNDS	68511-62-6	OSHA	TWA(as Ni):1 mg/m³	
TETRAHYDROFURFURYL ALCOHOL	97-99-4	AIHA	TWA:2 mg/m³(0.5 ppm)	

ACGIH : American Conference of Governmental Industrial Hygienists
AIHA : American Industrial Hygiene Association
CMRG : Chemical Manufacturer's Recommended Guidelines
OSHA : United States Department of Labor - Occupational Safety and Health Administration
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Exposure Controls

Occupational Exposure Controls

Appropriate Engineering Controls : Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment.

Personal Protection

Respiratory Protection

: An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:Half facepiece or full facepiece air-purifying respirator suitable for organic vapors and particulates
For questions about suitability for a specific application, consult with your respirator manufacturer.

Skin/Hand Protection

: Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended:
Polymer laminate
If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment.
The following protective clothing material(s) are recommended:
Apron - polymer laminate

Eye Protection

: Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended: Indirect Vented Goggles

Thermal hazards : Wear heat insulating gloves when handling hot material to prevent thermal burns.

9. Physical and Chemical Properties

Appearance	- Physical State	: Liquid
	- Color	: Yellow
Odor		: Acrylate Odor,
pH		: Not Applicable
Boiling Point / Boiling Range		: >200° F
Melting Point / Melting Range		: Not available
Decomposition Temperature		: Not available
Flash Point		: >200° F [Test Method: Closed Cup]
Auto ignition temperature		: Not available
Flammability (Solid, Gas)		: Not Applicable
Explosive Properties		: Not available
Oxidizing Properties		: Not available
Upper / Lower Flammability or Explosive Limits		: Not available
Vapor Pressure		: < 10 mmHg [@ 20 °C]
Specific Gravity		: 1.04 [Ref Std: WATER=1]
Solubility		: Not available
Water Solubility		: Negligible
Partition Coefficient (n-octanol / Water)		: Not available
Viscosity		: Not available
Vapor Density		: > 1 [Ref Std: AIR=1]
Evaporation Rate		: Not available
VOC		: Not available

10. Stability and Reactivity

Reactivity	: This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.
Chemical Stability	: Stable under normal conditions of use.
Possibility of Hazardous Reactions	: Hazardous polymerization will not occur.
Conditions to Avoid	: Heat
Incompatible Materials	: Strong oxidizing agents

Hazardous Decomposition	: None known.

Refer to section 5.2 for hazardous decomposition products during combustion

11. Toxicological Information

Inhalation	: Respiratory Tract Irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain.
Skin Contact	: Skin Irritation: Signs/symptoms may include localized redness, swelling, itching, dryness, cracking, blistering, and pain. Allergic Skin Reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching. May cause additional health effects (see below).
Eye Contact	: Severe Eye Irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.
Ingestion	: Harmful if swallowed. Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea. May cause additional health effects (see below).
Additional Health Effects:	
Prolonged or repeated exposure may cause target organ effects	: Kidney/Bladder Effects: Signs/symptoms may include changes in urine production, abdominal or lower back pain, increased protein in urine, increased blood urea nitrogen (BUN), blood in urine, and painful urination. Dermal Effects: Signs/symptoms may include redness, itching, acne, or bumps on the skin.
Reproductive/Developmental Toxicity	: Contains a chemical or chemicals which can cause birth defects or other reproductive harm.
Carcinogenicity	: Contains a chemical or chemicals which can cause cancer.

Ingredient	CAS No.	Class Description	Regulation
NI CMPDS NOT ALLOYS	68511-62-6	Known human carcinogen	National Toxicology Program Carcinogens
NICKEL COMPOUNDS	68511-62-6	Grp. 1: Carcinogenic to humans	International Agency for Research on Cancer

BENZOPHENONE	119-61-9	Grp. 2B: Possible human carc.	International Agency for Research on Cancer

Toxicological Data : If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE > 5,000 mg/kg
	Ingestion		No data available; calculated ATE 300 - 2,000 mg/kg
ISOOCTYL ACRYLATE	Dermal	Rabbit	LD50 > 2,000 mg/kg
	Ingestion	Rat	LD50 > 5,000 mg/kg
ISOBORNYL ACRYLATE	Dermal	Rabbit	LD50 > 5,000 mg/kg
	Ingestion	Rat	LD50 4,350 mg/kg
TETRAHYDROFURFURYL ACRYLATE	Ingestion	Rat	LD50 551 mg/kg
1,6-HEXANEDIOL DIACRYLATE	Dermal	Rabbit	LD50 3,636 mg/kg
	Ingestion	Rat	LD50 > 5,000 mg/kg
2,4,6-TRIMETHYLBENZOYLDIPHENYL PHOSPHINE	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
	Ingestion	Rat	> 5,000 mg/kg
BENZOPHENONE	Dermal	Rabbit	LD50 3,535 mg/kg
	Ingestion	Rat	LD50 1,900 mg/kg
NICKEL, 5,5'-AZOBIS-2,4,6(1H,3H,5H)-PYRIMIDINETRIONE COMPLEXES	Ingestion	Rat	LD50 5,000 mg/kg
MELAMINE	Dermal	Rabbit	LD50 > 1,000 mg/kg
	Ingestion	Rat	LD50 > 3,161 mg/kg

Skin Corrosion/Irritation

Name	Species	Value
ISOOCTYL ACRYLATE	Human	Minimal irritation
ISOBORNYL ACRYLATE	Rabbit	Minimal irritation

TETRAHYDROFURFURYL ACRYLATE	Rabbit	Irritant
1,6-HEXANEDIOL DIACRYLATE	Rabbit	Irritant

Serious Eye Damage/Irritation

Name	Species	Value
ISOOCTYL ACRYLATE	Similar health hazards	Mild irritant
ISOBORNYL ACRYLATE	Rabbit	Mild irritant
TETRAHYDROFURFURYL ACRYLATE	Rabbit	Severe irritant
1,6-HEXANEDIOL DIACRYLATE	Rabbit	Moderate irritant

Skin Sensitization

Name	Species	Value
ISOOCTYL ACRYLATE	Guinea pig	Some positive data exist, but the data are not sufficient for classification
ISOBORNYL ACRYLATE	Mouse	Sensitizing
TETRAHYDROFURFURYL ACRYLATE	Human and animal	Some positive data exist, but the data are not sufficient for classification
1,6-HEXANEDIOL DIACRYLATE	Guinea pig	Sensitizing
NICKEL, 5,5'-AZOBIS-2,4,6(1H,3H,5H)-PYRIMIDINETRIONE COMPLEXES	similar compounts	Sensitizing

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification

Germ Cell Mutagenicity

Name	Route	Value
ISOOCTYL ACRYLATE	In Vitro	Some positive data exist, but the data are not sufficient for classification
ISOBORNYL ACRYLATE		
1,6-HEXANEDIOL DIACRYLATE		

Carcinogenicity

Name	Route	Species	Value
NICKEL, 5,5'-AZOBIS-2,4,6(1H,3H,5H)-PYRIMIDIN	Not Specified	Similar compou	Carcinogenic

ETRIONE COMPLEXES		nds	
MELAMINE	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
ISOOCTYL ACRYLATE	Ingestion	Some positive developmental data exist, but the data are not sufficient for classification	Rat	NOAEL 1,000 mg/kg/day	during organogenesis
2,4,6-TRIMETHYLBENZOYLDIPHENYLPHOSPHINE	Ingestion	Toxic to male reproduction	Rat	NOAEL 100 mg/kg/day	90 days

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result
ISOOCTYL ACRYLATE	Ingestion	central nervous system depression	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 5,000 mg/kg
ISOBORNYL ACRYLATE	Inhalation	respiratory irritation		official classification	Not available
TETRAHYDROFURFURYL ACRYLATE	Inhalation	respiratory irritation			Not available
1,6-HEXANEDIOL DIACRYLATE	Inhalation	respiratory irritation		Human	Not Available

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration

ISOOCTYL ACRYLATE	Ingestion	endocrine system | liver | kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 600 mg/kg/day (Rat, 90 days)	90 days
2,4,6-TRIMETHYL BENZOYLDIPHE NYLPHOSPHINE	Ingestion	skin | blood | liver |kidney and/or bladder		Rat	NOAEL 1,000 mg/kg/day (Rat, 90 days)	90 days
1,6-HEXANEDIOL DIACRYLATE	Dermal	skin	May cause damage to organs though prolonged or repeated exposure	Mouse	LOAEL 70 mg/kg/day (Mouse, 80 weeks)	80 weeks
MELAMINE	Ingestion	kidney and/or bladder		Rat	LOAEL 63 mg/kg/day	13 Weeks

Aspiration Hazard
For the component/components, either no data are currently available or the data are not sufficient for classification.

12. Ecological Information

Handling is noted because it might influence the environment when leaking and abandoning it.
Especially, note that the product doesn't flow directly to ground, the river, and the drain ditch.

Ecotoxicity : Please contact the address or phone number listed on the first page of the SDS for additional chemical fate information on this material and/or its components.

Persistence and Degradability : Not available

Bioaccumulation : Not available

Mobility : Not available

Other Toxicity : Not available

13. Disposal Considerations

Disposal methods	: Dispose of contents/ container in accordance with the local/regional/national/international regulations. Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in a permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities. Do not dump this product into sewers, on the ground or into any body of water.
EPA Hazardous Waste Number (RCRA)	: Not regulated

14. Transport Information

	Check a thing without a leak in a container. Perform prevention of collapse of cargo surely.
UN Number	: UN3082
Shipping Name	: Environmentally hazardous substance, liquid, n.o.s. (ISOOCTYL ACRYLATE, ISOBORNYL ACRYLATE)
Hazardous Class or Division	: 9
Packing Group (PG)	: III
Remarks	: Single or inner packaging less than 5 L (liquid) or 5 kg net (solids) is excepted from Dangerous Goods regulations. Refer to ICAO/IATA A197, IMDG 2.10.2.7, ADR SP 375.

15. Regulatory Information

U.S. Federal Regulations

SARA TitleⅢ Section 311/312 : Immediate Hazard: Yes
Delayed Hazard: Yes
Fire: No
Pressure: No
Reactive: No

Section 313 Toxic Chemicals subject to the reporting requirements of that section and 40 CFR part 372 (EPCRA):

Ingredient	CAS No.	% by Wt
NICKEL, 5,5'-AZOBIS-2,4,6(1H,3H,5H)-PYRIMIDINETRIONE COMPLEXES (NICKEL COMPOUNDS)	68511-62-6	1 - 5

This material contains a chemical which requires export notification under TSCA Section 12[b]:

Ingredient	CAS No.	Regulation	Status
BENZOPHENONE	119-61-9	Toxic Substances Control Act (TSCA) 4 Test Rule Chemicals	Applicable

U.S. State Regulations

California Proposition 65 : **WARNING**

This product can expose you to chemicals including and Benzophenone, Nickel compounds, Cobalt metal powder, Nickel (Metallic), Toluene which are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Chemical Inventories : The components of this product are in compliance with the chemical notification requirements of TSCA.

16. Other Information

This information is furnished without warranty, express or implied, except that it is accurate to the best knowledge of Mimaki Engineering Corporation.
It relates only to the specific material designated herein, and does not relate to use in combination with any other material or process.

Safety Data Sheets

Mimaki Engineering Corporation assumes no legal responsibility for use or reliance upon this information.