

## Safety Data Sheets

### 1. Identification

Product Name	: Acid Dye Ink Ac400 Yellow
Order No.	: AC400-Y-2L
General Use	: Ink jet printing ink
Product Description	: Acid Dye Ink
SDS Number	: 037-W451843
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	: 4851 Thurmon Tanner Parkway, STE 100 Flowery Branch, GA 30542, 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

#### [HCS Classification]

#### Physical Hazards

Flammable Liquids : Category Not classified

#### Health Hazards

Skin Corrosion / Irritation : Category 2

Eye Damage / Irritation : Category 2A

Sensitization – Skin : Category 1A

Toxic to Reproduction : Category 1B

Specific Target Organ Toxicity : Category 1 (Central Nervous System, hear , kidney ,  
(Single Exposure) respiratory syste , Hematopoietic System)

Specific Target Organ Toxicity : Category 3  
(Single Exposure)

Specific Target Organ Toxicity : Category 1 (Central Nervous System, heart,  
(Repeated Exposure) respiratory system, kidneys)

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

## Safety Data Sheets

### [HCS Label Elements]

#### Symbol



#### Signal Word

Danger

#### Hazard Statements

- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Cause serious eye irritation.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness and dizziness.
- H360 May damage fertility or the unborn child.
- H370 Causes damage to organs(Central Nervous System, hear , kidney , respiratory syste , Hematopoietic System)..
- H372 Cause damage to organs through prolonged or repeated exposure (Central Nervous System, heart, respiratory system, kidneys).

#### 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/mist/vapors.
- P264 Wash hands thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

##### [Response]

- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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+P311 IF exposed or concerned: Call a POISON CENTER/doctor.
- P312 Call a POISON CENTER or doctor/physician if you feel unwell.
- 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 reuse.

##### [Storage]

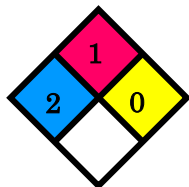
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.
- P405 Store locked up.

##### [Disposal]

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

# Safety Data Sheets

NFPA Rating (scale 0 – 4)  
 Health = 2  
 Flammability = 1  
 Instability = 0  
 Special =



### 3. Composition / Information on Ingredients

No	Chemical Name	Wt%	CAS No.
1	Water	balance	7732-18-5
2	Ethylene glycol	20-30	107-21-1
3	Glycols	10-20	Trade Secret
4	Pigment	5-10	Trade Secret
5	Other additives	<3	Trade Secret
6	Preservative	<0.5	Mixture

Component Related Regulatory Information.

The chemical identity and/or percentage of composition is being withheld as a trade secret.

### 4. First Aid Measures

- Inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
- Eye Contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
- Skin Contact : Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation or rash occurs: Get medical advice/attention.
- Ingestion : Call a POISON CENTER or doctor/physician if you feel unwell.  
Rinse mouth.
- Most Important Symptoms/Effects
- Acute : skin irritation, eye irritation, respiratory tract irritation, central nervous system depression, allergic skin reaction, central nervous system damage, heart damage, kidney damage, respiratory system

## Safety Data Sheets

Delayed	: damage, hematopoietic system damage.
Indication of Immediate Medical Attention and Special Treatment Needed, If Needed	: allergic skin reaction, reproductive effects, central nervous system damage, heart damage, respiratory system damage, kidney damage.
	: Treat symptomatically and supportively.

### 5. Fire Fighting Measures

Flammable Properties	: Not flammable.
Extinguishing Media	: Regular dry chemical, carbon dioxide, water spray, foam.
Unsuitable Extinguishing Media	: Do not scatter spilled material with high-pressure water streams.
Special Hazards Arising from the Chemical	: Negligible fire hazard during intended use. Irritating and/or toxic fumes and gases may be emitted upon the product's decomposition.
Hazardous Combustion Products	: Oxides of carbon.
Fire Fighting Measures	: Move material from fire area if it can be done without risk. Use extinguishing agents appropriate for surrounding fire. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.
Special Protective Equipment and Precautions for Firefighters	: Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

### 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures	: Wear personal protective clothing and equipment, see Section 8.
Methods and Materials	: Avoid heat, flames, sparks and other sources of ignition. Stop leak if

## Safety Data Sheets

for Containment and Cleaning Up	possible without personal risk. Reduce vapors with water spray. <b>Small spills:</b> Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. <b>Large spills:</b> Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.
Environmental Precautions	: Avoid release to the environment.

### 7. Handling and Storage

Precautions for Safe Handling	: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Do not eat, drink or smoke when using this product. Wear protective gloves/clothing and eye/face protection. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.
Conditions for Safe Storage, including any Incompatibilities	: Store in a well-ventilated place. Keep container tightly closed. Store locked up. Further information on storage conditions: Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep container tightly closed. Keep cool. Keep separated from incompatible substances.
Incompatible Materials	: oxidizing materials, acids, combustible materials, bases, reducing agents, metals, metal salts, halocarbons.

### 8. Exposure Controls / Personal Protection

Exposure Limit Values	: <b>Ethylene glycol 107-21-1</b> ACGIH: 25 ppm TWA vapor fraction 50 ppm STEL vapor fraction ; 10 mg/m <sup>3</sup> STEL inhalable particulate matter, aerosol only 100 mg/m <sup>3</sup> Ceiling aerosol only Europe: 20 ppm TWA ; 52 mg/m <sup>3</sup> TWA Possibility of significant uptake through the skin 40 ppm STEL ; 104 mg/m <sup>3</sup> STEL
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## Safety Data Sheets

Mexico: 100 mg/m<sup>3</sup> Ceiling aerosol  
 ACGIH - Threshold : There are no biological limit values for any of this product's  
 Limit Values - Biological components.  
 Exposure Indices (BEI)

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### Exposure Controls

#### Occupational Exposure Controls

Appropriate : Provide local exhaust or process enclosure ventilation system.

Engineering Controls Ensure compliance with applicable exposure limits.

#### Individual Protection Measures, such as Personal Protective Equipment

Respiratory Protection : Consult with a health and safety professional for specific respirators appropriate for your use.



Glove : Wear appropriate chemical resistant gloves.

#### Recommendations



Eye /Face : Wear splash resistant safety goggles. Provide an emergency eye  
 Protection wash fountain and quick drench shower in the immediate work area.



**Safety**  
 Skin Protection : Wear appropriate chemical resistant clothing.



## 9. Physical and Chemical Properties

Appearance	- Physical State	: liquid
	- Color	: yellow
Odor		: faint odor
pH		: 7 - 10 (20 °C )
Boiling Point / Boiling Range		: Not available

## Safety Data Sheets

Melting Point / Melting Range	: Not available
Decomposition Temperature	: Not available
Flash Point	: not flammable
Auto ignition temperature	: Not available
Flammability (Solid, Gas)	: Not available
Explosive Properties	: Not available
Oxidizing Properties	: Not available
Upper / Lower Flammability or Explosive Limits	: Not available
Vapor Pressure	: Not available
Specific Gravity	: 1 - 1.1
Solubility	: Not available
Water Solubility	: soluble
Partition Coefficient (n-octanol / Water)	: Not available
Viscosity	: 3 - 10 mPa · s (20 °C )
Vapor Density	: Not available
Evaporation Rate	: Not available

### 10. Stability and Reactivity

Reactivity	: No reactivity hazard is expected.
Chemical Stability	: Stable at normal temperatures and pressure.
Possibility of Hazardous Reactions	: Will not polymerize.
Conditions to Avoid	: Avoid flames, sparks, and other sources of ignition. Containers may rupture or explode if exposed to heat. Avoid contact with incompatible materials.
Incompatible Materials	: oxidizing materials, acids, combustible materials, bases, reducing agents, metals, metal salts, halocarbons.
Hazardous Decomposition	: Oxides of carbon.

### 11. Toxicological Information

#### Information on Likely Routes of Exposure

Inhalation	: irritation, drowsiness, dizziness, organ damage.
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## Safety Data Sheets

Ingestion : irritation, drowsiness, dizziness.  
Skin Contact : irritation, allergic skin reaction.  
Eye Contact : irritation

### Acute and Chronic Toxicity

Component Analysis - LD50/LC50 : The components of this material have been reviewed in various sources and the following selected endpoints are published.

**Ethylene glycol (107-21-1)**

Oral LD50 Rat 4700 mg/kg

Dermal LD50 Rat 10600 mg/kg

**Glycols (Trade Secret)**

Oral LD50 Rat 22 g/kg

Dermal LD50 Rabbit >20 mL/kg

**Product Toxicity Data (Acute Toxicity Estimate)**

Dermal > 2000 mg/kg

Inhalation – Vapor > 20 mg/L

Oral > 2000 mg/kg

Immediate Effects : skin irritation, eye irritation, respiratory tract irritation, central nervous system depression, allergic skin reaction central nervous system damage, heart damage, kidney damage, respiratory system damage, hematopoietic system damage.

Delayed Effects : allergic skin reaction, reproductive effects, central nervous system damage, heart damage, respiratory system damage, kidney damage.

Irritation/Corrosivity Data : skin irritation, eye irritation.

Respiratory : No information available for the product.

Sensitization

Dermal Sensitization : Available data characterizes components of this product as dermal sensitization hazards.

Germ Cell : No information available for the product.

Mutagenicity

Carcinogenicity : No information available for the product.

Component : **Ethylene glycol 107-21-1**

Carcinogenicity ACGIH: A4 - Not Classifiable as a Human Carcinogen

Tumorigenic Data : No information available for the product.

Reproductive Toxicity : Available data characterizes components of this product as reproductive hazards.

## Safety Data Sheets

Specific Target Organ	: central nervous system, heart, kidneys, respiratory system,
Toxicity - Single Exposure	hematopoietic system.
Specific Target Organ	: central nervous system, heart, respiratory system, kidneys.
Toxicity - Repeated Exposure	
Aspiration Hazard	: Not expected to be an aspiration hazard.
Medical Conditions	: skin disorders and allergies.
Aggravated by Exposure	

### 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	: Harmful to aquatic life with long lasting effects.
Component Analysis - Aquatic Toxicity	: <b>Ethylene glycol 107-21-1</b> Fish: LC50 96 h Oncorhynchus mykiss 41000 mg/L; LC50 96 h Oncorhynchus mykiss 14 - 18 mL/L [static ]; LC50 96 h Lepomis macrochirus 27540 mg/L [static ]; LC50 96 h Oncorhynchus mykiss 40761 mg/L [static ]; LC50 96 h Pimephales promelas 40000 - 60000 mg/L [static ]; LC50 96 h Poecilia reticulata 16000 mg/L [static ] Algae: EC50 96 h Pseudokirchneriella subcapitata 6500 - 13000 mg/L IUCLID Invertebrate: EC50 48 h Daphnia magna 46300 mg/L IUCLID
Persistence and Degradability	: No information available for the product.
Bioaccumulation	: No information available for the product.
Mobility	: No information available for the product.

### 13. Disposal Considerations

Disposal Methods	: Comply with all USA, national and local regulations. <u>Do not dump this product into sewers, on the ground or into any body of water.</u>
Component Waste Numbers	: The U.S. EPA has not published waste numbers for this product's components.

## Safety Data Sheets

Disposal of Contaminated Packaging : Empty containers may contain product residue. Dispose in accordance with all applicable regulations.

### 14. Transport Information

Check a thing without a leak in a container.

Perform prevention of collapse of cargo surely.

US DOT Information : No Classification assigned.

International Bulk Chemical Code : This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

**Ethylene glycol 107-21-1**

IBC Code: Category Y

**Glycols (Trade Secret)**

IBC Code: Category Z

### 15. Regulatory Information

U.S. Federal Regulations : This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

**Ethylene glycol 107-21-1**

SARA 313: 1 % de minimis concentration

CERCLA: 5000 lb final RQ ; 2270 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories : Reproductive Toxicity; Skin Corrosion/Irritation; Respiratory/Skin Sensitization; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity.

U.S. State Regulations : The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
Ethylene glycol	107-21-1	Yes	Yes	Yes	Yes	Yes
Glycols	Trade Secret	No	No	Yes	No	No

# Safety Data Sheets

California Proposition

**: WARNING:**

65



This product can expose you to chemicals including Ethylene glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Canada Regulations

**: Canadian WHMIS Ingredient Disclosure List (IDL)**

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL.

**Ethylene glycol 107-21-1: 1 %**

## Component Analysis – Inventory

### Ethylene glycol (107-21-1)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes

### Glycols (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
Yes	DSL	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes

### Pigment (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
No	No	No	Yes	No	Yes	Yes	Yes	No	No	Yes	No	No	Yes

### Other additives (Trade Secret)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
Yes	DSL	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	No	Yes

### Preservative (Mixture)

## Safety Data Sheets

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes

### 16. Other Information

#### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania\*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; NDSL – Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of



Product Name: Acid Dye Ink Ac400 Yellow  
SDS No. 037- W451843  
First issue: 2017/01/19  
Revised: 2025/04/08

## Safety Data Sheets

Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); WHMIS - Workplace Hazardous Materials Information System (Canada).

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