Safety Data Sheets

1. Identification

Product Name	: SS21 ink Black
Order No.	: SPC-0501K-2 / SPC-0588K-2 / SS21-K-60-2
General Use	: Ink for ink jet printer
Product Description	: Solvent pigment ink
SDS Number	: 037-S080496
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	: Category 4

Health Hazards

Eye Damage / Irritation	: Category 1
Carcinogenicity	: Category 2
Toxic to Reproduction	: Category 1B
Specific Target Organ Toxicity (Single Exposure)	: Category 2
Specific Target Organ Toxicity (Repeated Exposure)	: Category 2

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

H227 Combustible liquid.
H318 Cause serious eye damage.
H351 Suspected of causing cancer.
H360 May damage fertility or the unborn child.
H371 May cause damage to organs.
H373 May cause damage to organs through prolonged or repeated exposure.

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.
P210 Keep away from open flames and other ignition sources. No smoking.
P260 Do not breathe gas/mist/vapours.
P264 Wash hands and eyes thoroughly after handling.
P270 Do not eat, drink, or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
[Response]
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 or doctor/physician.
(P305+)P310 (IF IN EYES) Immediately call a POISON CENTER or doctor/physician.
P314 Get medical advice/attention if you feel unwell.
P370+P378 In case of fire: Use foam, carbon dioxide, dry chemical for extinguish.
[Storage]
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
[Disposal]
P501 Dispose of contents/container in accordance with local/regional/national/international regulation (to be specified).

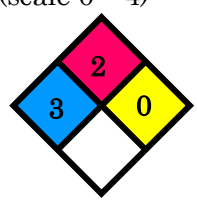
NFPA Rating (scale 0 – 4)

Health = 3

Flammability = 2

Instability = 0

Special = None



CANADIAN WHMIS SYMBOLS

3. Composition / Information on Ingredients

Mixtures

No	Chemical Name	Wt%	CAS No.
1	Glycol ether solvents	75-85	Trade Secret
2	Lactone solvent series	10-20	Trade Secret
3	Vinyl resin	1-5	Trade Secret
4	Pigment	1-5	Trade Secret
6	Corrosion inhibitor	0.1-1	Trade Secret

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

4. First Aid Measures

Description of first aid measures

Eye Contact : If this product comes in contact with the eyes:
Immediately hold eyelids apart and flush the eye continuously with running water. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Transport to hospital or doctor without delay. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact : If skin or hair contact occurs:
Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation.

Inhalation : If fumes, aerosols or combustion products are inhaled remove from contaminated area. Other measures are usually unnecessary.

Ingestion : Immediately give a glass of water. First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

Most important symptoms and effects, both acute and delayed

See Section 11.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Fire Fighting Measures

Flammable Properties	: Flash point 71.1 degree C Auto Ignition Temperature: 169 degree C Explosive Limit : 2% to 33.0%
Extinguishing Media	: Foam, Dry chemical powder, BCF (where regulations permit), Carbon dioxide, Water spray or fog - Large fires only.
Unsuitable Extinguishing Media	: Do not scatter spilled material with high-pressure water streams.

Special hazards arising from the substrate or mixture

Fire Incompatibility	: None known.

Special protective equipment and precautions for fire-fighters

Fire Fighting	: Alert Fire Brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course. Use water delivered as a fine spray to control fire and cool adjacent area. Avoid spraying water onto liquid pools. DO NOT approach containers suspected to be hot. Cool fire exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire.
Fire/Explosion Hazard	: Combustible. Slight fire hazard when exposed to heat or flame. Heating may cause expansion or decomposition leading to violent rupture of containers. On combustion, may emit irritating/ toxic fumes. May emit acrid smoke. Mists containing combustible materials may be explosive. May emit poisonous fumes. May emit corrosive fumes.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

See section 8.

Environmental precautions

See section 12.

Methods and material for containment and cleaning up

Minor Spills	: Remove all ignition sources. Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes. Control personal contact with the substance, by using protective equipment. Contain and absorb spill with sand, earth, inert material or vermiculite. Wipe up. Place in a suitable, labelled container for waste disposal.
Major Spills	: Moderate hazard. Clear area of personnel and move upwind. Alert Fire Brigade and tell them location and nature of hazard. Wear breathing apparatus plus protective gloves. Prevent, by any means available, spillage from entering drains or water course. No smoking, naked lights or ignition sources. Increase ventilation. Stop leak if safe to do so. Contain spill with sand, earth or vermiculite. Collect recoverable product into labelled containers for recycling. Absorb remaining product with sand, earth or vermiculite. Collect solid residues and seal in labelled drums for disposal. Wash area and prevent runoff into drains. If contamination of drains or waterways occurs, advise emergency services.

7. Handling and Storage

Precautions for Safe Handling	: Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. Avoid smoking, naked lights or ignition sources. Avoid contact with incompatible materials. When handling, DO NOT eat, drink or smoke. Keep containers securely sealed when not in use. Avoid physical damage to containers. Always wash hands with soap and water after handling. Work clothes should be laundered separately.
Conditions for Safe Storage	: Store in original containers. Keep containers securely sealed. No smoking, naked lights or ignition sources. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Observe manufacturer's storage and handling recommendations contained within this SDS.
Storage	: None known.

incompatibility

8. Exposure Controls / Personal Protection

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
OSHA-PELs	Pigment	Carbon black	3.5 mg/m3	Not Available	Not Available	Not Available
ACGIH -TLV	Pigment	Carbon black	3 mg/m3	Not Available	Not Available	TLV® Basis: Bronchitis
NIOSH -RELs	Pigment	Acetylene black, Channel black, Furnace black, Lamp black, Thermal black	3.5 mg/m3	Not Available	Not Available	Ca See Appendix A See Appendix C

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
Pigment	Carbon black	9 mg/m3	99 mg/m3	590 mg/m3
Vinyl resin	Trade secret	120 mg/m3	1,300 mg/m3	7,900 mg/m3
Lactone solvent series	Trade secret	3.6 mg/m3	39 mg/m3	310 mg/m3

Ingredient	Original IDLH	Revised IDLH
Pigment	N.E. mg/m3 / N.E. ppm	1,750 mg/m3
Vinyl resin	Not Available	Not Available
Glycol ether solvents	Not Available	Not Available
Lactone solvent series	Not Available	Not Available
Corrosion inhibitor	Not Available	Not Available

Exposure Controls

Occupational Exposure Controls

Appropriate Engineering Controls : General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas.

Personal Protection

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

Hand Protection : Wear chemical protective gloves, e.g. PVC.

Eye Protection : Safety glasses with side shields. Chemical goggles. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants.

Skin Protection : Wear safety footwear or safety gumboots, e.g. Rubber. Overalls. P.V.C. apron.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance: Black liquid

Physical state	Liquid	Relative density (Water = 1)	0.975
Odour	Slight	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	169
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point /freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	176-204	Molecular weight (g/mol)	Not Available
Flash point (°C)	71.1 (closed cup)	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Combustible	Oxidising properties	Not Available
Upper Explosive Limit (%)	33	Surface Tension (dyn/cm or mN/m)	Not Available

Lower Explosive Limit (%)	2	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	2.67	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	Not Available	VOC g/L	Not Available

10. Stability and Reactivity

Reactivity	: Stable under normal conditions of use.
Chemical Stability	: Unstable in the presence of incompatible materials. Product is considered stable.
Possibility of Hazardous Reactions	: Hazardous polymerisation will not occur.
Conditions to Avoid	: See section 7.
Incompatible Materials	: See section 7.
Hazardous decomposition products	: See section 5.

11. Toxicological Information

Information on toxicological effects

Inhaled	: The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Ingestion	: The material has NOT been classified by EC Directives or other classification systems as 'harmful by ingestion'. This is because of the lack of corroborating animal or human evidence.
Skin Contact	: The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis. The material is unlikely to produce an irritant dermatitis as described in EC Directives. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external

damage is suitably protected.

Eye : If applied to the eyes, this material causes severe eye damage.

Chronic : Substance accumulation, in the human body, is likely and may cause some concern following repeated or long-term occupational exposure. There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.

This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility. Based on experience with animal studies, exposure to the material may result in toxic effects to the development of the foetus, at levels which do not cause significant toxic effects to the mother.

Ingredient	TOXICITY	IRRITATION
As a product	Not Available	Not Available
Pigment	Not Available	Not Available
Vinyl resin	Not Available	Not Available
Glycol ether solvents	Not Available	Not Available
Lactone solvent series	Not Available	Not Available
Corrosion inhibitor	Not Available	Not Available

Acute Toxicity : Data Not Available to make classification.

Skin Irritation/Corrosion : Data Not Available to make classification.

Serious Eye Damage/Irritation : Data available to make classification.

Respiratory or Skin sensitisation : Data Not Available to make classification.

Mutagenicity : Data Not Available to make classification.

Carcinogenicity : Data available to make classification.

Reproductivity : Data available to make classification.

STOT - Single Exposure : Data available to make classification.

STOT - Repeated : Data available to make classification.

Exposure

Aspiration Hazard : Data Not Available to make 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.

Ingredient	Endpoint	Test Duration (hr)	Species	Value	Source
Pigment	LC50	96	Fish	=1000mg/L	1
	EC50	24	Crustacea	>5600mg/L	1
	NOEC	96	Fish	=1000mg/L	1
Glycol ether solvents	LC50	96	Fish	713.772mg/L	3
	EC50	96	Algae or other aquatic plants	4246.290mg/L	3
	EC50	384	Crustacea	163.553mg/L	3
Lactone solvent series	LC50	96	Fish	220mg/L	1
	EC50	48	Crustacea	>500mg/L	1
	EC50	96	Algae or other aquatic plants	16.400mg/L	3
	EC20	72	Algae or other aquatic plants	=14mg/L	1
	NOEC	24	Fish	=5mg/L	1
Corrosion inhibitor	LC50	96	Fish	1514.080mg/L	3
	EC50	48	Crustacea	374mg/L	2
	EC50	96	Algae or other aquatic plants	61.454mg/L	3
	EC50	504	Crustacea	59.8mg/L	2
	NOEC	504	Crustacea	3.99mg/L	2

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances – Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated)

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Glycol ether solvents	LOW	LOW
Lactone solvent series	LOW	LOW
Corrosion inhibitor	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
Glycol ether solvents	LOW (LogKOW = 0.0093)
Lactone solvent series	LOW (BCF = 1.8)
Corrosion inhibitor	LOW (LogKOW = -0.6047)

Mobility in soil

Ingredient	Mobility
Glycol ether solvents	LOW (KOC = 10)
Lactone solvent series	LOW (KOC = 7.134)
Corrosion inhibitor	HIGH (KOC = 1)

13. Disposal Considerations

Comply with all USA, national and local regulations.

Do not dump this product into sewers, on the ground or into any body of water.

Disposal Methods : Dispose in accordance with all applicable regulations.

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.

Labels Required : Marine Pollutant; NO

Land transport (DOT) : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS. *1

Air transport (ICAO-IATA / DGR) : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS.

Sea transport (IMDG-Code / GGVSee) : NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS.

Transport in bulk according to Annex II of MARPOL and the IBC code : Not Applicable

*1 Class combustible liquid (NA1993), Packing group III for quantities of 450 liters (119 gallons) or

more; not regulated for smaller quantities

15. Regulatory Information

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

PIGMENT IS FOUND ON THE FOLLOWING REGULATORY LISTS

US - Alaska Limits for Air Contaminants
US - California Permissible Exposure Limits for Chemical Contaminants
US - California Proposition 65 - Carcinogens
US - Hawaii Air Contaminant Limits
US - Idaho - Limits for Air Contaminants
US - Massachusetts - Right To Know Listed Chemicals
US - Michigan Exposure Limits for Air Contaminants
US - Minnesota Permissible Exposure Limits (PELs)
US - New Jersey Right to Know - Special Health Hazard Substance List (SHHSL): Carcinogens
US - Oregon Permissible Exposure Limits (Z-1)
US - Pennsylvania - Hazardous Substance List
US - Rhode Island Hazardous Substance List
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants
US - Washington Permissible exposure limits of air contaminants
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants
US ACGIH Threshold Limit Values (TLV)
US ACGIH Threshold Limit Values (TLV) - Carcinogens
US NIOSH Recommended Exposure Limits (RELs)
US OSHA Permissible Exposure Levels (PELs) - Table Z1
US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and
Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

VINYL RESIN IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

GLYCOL ETHER SOLVENTS ARE FOUND ON THE FOLLOWING REGULATORY LISTS

US - California OEHHA/ARB - Acute Reference Exposure Levels and Target Organs (RELs)
US - California OEHHA/ARB - Chronic Reference Exposure Levels and Target Organs (CRELs)
US - Pennsylvania - Hazardous Substance List

US Clean Air Act - Hazardous Air Pollutants
US EPCRA Section 313 Chemical List
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

LACTONE SOLVENT SERIES ARE FOUND ON THE FOLLOWING REGULATORY LISTS

US Drug Enforcement Administration (DEA) List I and II Regulated Chemicals
US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

CORROSION INHIBITOR IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

Immediate (acute) health hazard	Yes
Delayed (chronic) health hazard	Yes
Fire hazard	Yes
Pressure hazard	No
Reactivity hazard	No

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

None Reported.

State Regulations

US. CALIFORNIA PROPOSITION 65

	: **WARNING:** This product can expose you to chemicals including Arsenic compounds, Cadmium and cadmium compounds, Carbon black, Chromium (hexavalent compounds), Lead and lead compounds, Mercury and mercury compounds, Nickel compounds, Vinyl Chloride, Ethylene Glycol Monoethyl Ether, Acetaldehyde and Methanol which are known to the State of California to cause cancer/ birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Inventory

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	Y

China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	Y
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	N
USA - TSCA	Y

Legend: Y = All ingredients are on the inventory.

N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets).

16. Other Information

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.

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