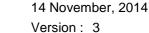


Q34-2117



Safety Data Sheet

IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier Product Name : Ink cartridge (Yellow)

Product Code: IP5-301

1.2 Relevant identified uses of the substance or mixture and uses advised against

Inkjet Ink

1.3 Details of the supplier of the safety data sheet

Manufacturer's Name: Seiko I Infotech Inc.

563, Takatsuka-Shinden, Matsudo-shi, Chiba, 270-2222, Japan

Tel:+81-47-391-2349

Distributor: Seiko Instruments GmbH

Siemensstrase 9, D-63263 Neu-Isenburg

Germany

+49-6102-297-0

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

<Regulation (EC) No. 1272/2008>

Classification

SII

Acute toxicity, Category 4 H302: Harmful if swallowed.

Acute toxicity, Category 4 H312: Harmful in contact with skin.

Serious eye damage, Category 1 H318: Causes serious eye damage.

<1999/45/EC >

Harmful R20/21/22: Harmful by inhalation, in contact with skin and if

swallowed.

Irritant R41: Risk of serious damage to eyes.

2.2 Label elements

<Regulation (EC) No. 1272/2008>

Hazard pictograms





Signal word: Danger

Hazard statements Harmful if swallowed or in contact with skin.

Causes serious eye damage.

Precautionary statements

Prevention: Do not eat, drink or smoke when using this product

Wear eye protection/ face protection.

Wear protective gloves/ protective clothing.

Response: IF SWALLOWED: Call a POISON CENTER or doctor/

physician if you feel unwell. Rinse mouth.

IF ON SKIN: Wash with plenty of water. Call a POISON

CENTER or doctor/ physician if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/

physician.

Hazardous components which must be listed on the label:

2-Butoxyethyl acetate

y-butyrolactone

2.3 Other hazards

Vapours may form explosive mixture with air.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Main Ingredients	Content(%)	CAS-No.	EC-No.	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)
2-Butoxyethyl acetate	75-85	112-07-2	203-933-3	Xn;	Acute Tox. 4; H302 Acute Tox. 4; H312 Acute Tox. 4; H332
γ-butyrolactone	1-10	96-48-0	202-509-5	Xn; R22 Xi; R41 R67	Acute Tox. 4; H302 Eye Dam. 1; H318 STOT SE 3; H336

Other components (listed on EINECS, NLP or ELINCS) are not hazardous according to the directives mentioned above.

4. FIRST-AID MEASURES

4.1 Description of first aid measures

General advice: In the case of accident or if you feel unwell, seek medical

advice immediately.

When symptoms persist or in all cases of doubt seek medical

advice.

Protection of first-aiders: First Aid responders should pay attention to self-protection,

and use the recommended personal protective equipment

when the potential for exposure exists.

If inhaled: If inhaled, remove to fresh air.

Get medical attention if symptoms occur.

In case of skin contact: In case of contact, immediately flush skin with plenty of water.

Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Wash clothing before reuse.

Thoroughly clean shoes before reuse.

In case of eye contact: In case of contact, immediately flush eyes with plenty of water

for at least 15 minutes.

If easy to do, remove contact lens, if worn.

Get medical attention immediately

If swallowed: If swallowed, DO NOT induce vomiting unless directed to do so

by medical personnel. Get medical attention.

Rinse mouth thoroughly with water.

Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Risks: Harmful if swallowed or in contact with skin Causes serious eye

damage.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically and supportively

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing Water spray

media: Alcohol-resistant foam

Dry chemical

Carbon dioxide (CO2)

Unsuitable Extinguishing Media

High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during

fire-fighting:

Do not use a solid water stream as it may scatter and spread

fire.

Flash back possible over considerable distance. Vapours may form explosive mixtures with air.

Exposure to combustion products may be a hazard to health.

Hazardous combustion

products:

Carbon oxides

5.3 Advice for firefighters

Special protective equipment In the event of fire, wear self-contained breathing apparatus.

for firefighters:

Use personal protective equipment.

Specific extinguishing

methods:

Use extinguishing measures that are appropriate to local

circumstances and the surrounding environment.

Cool containers/tanks with water spray.

Remove undamaged containers from fire area if it is safe to

do so.

Evacuate area.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Remove all sources of ignition.

Use personal protective equipment.

Follow safe handling advice and personal protective

equipment recommendations.

6.2 Environmental precautions

Environmental precautions: Discharge into the environment must be avoided.

Prevent further leakage or spillage if safe to do so.

Prevent spreading over a wide area (e.g. by containment or

oil barriers).

Retain and dispose of contaminated wash water.

Local authorities should be advised if significant spillages

cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up: Non-sparking tools should be used.

Soak up with inert absorbent material (e.g. sand, silica gel,

acid binder, universal binder, sawdust).

Suppress (knock down) gases/vapours/mists with a water

spray jet.

For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in

appropriate container.

Clean up remaining materials from spill with suitable

absorbent.

Local or national regulations may apply to releases and disposal of this material, as well as those materials and items

employed in the cleanup of releases. You will need to

determine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Technical measures: See Engineering measures under EXPOSURE

CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation: Use with local exhaust ventilation.

Use only in an area equipped with explosion proof exhaust

ventilation.

Advice on safe handling: Do not get on skin or clothing.

Avoid inhalation of vapour or mist.

Do not swallow. Do not get in eyes.

Handle in accordance with good industrial hygiene and

safety practice.

Keep container tightly closed.

Keep away from heat and sources of ignition.

Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to

the environment.

Hygiene measures: Ensure that eye flushing systems and safety showers are

located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before reuse.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage

areas and containers:

Keep in properly labelled containers. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat

and sources of ignition.

Advice on common storage: Do not store with the following product types:

Strong oxidizing agents

Explosives Gases

7.3 Specific end use(s)

Specific use(s): No data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

Components		Value type (Form of exposure)	Control parameters	Basis
2-Butoxyethyl acetate	112-07-2	TWA	20 ppm 133 mg/m3	2000/39/EC
			50 ppm 333 mg/m3	2000/39/EC
		TWA	20 ppm	GB EH40
	_	STEL	50 ppm	GB EH40

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

2-Butoxyethyl acetate: End Use: Workers

Exposure routes: Inhalation

Potential health effects: Long-term systemic effects

Value: 133 mg/m3 End Use: Workers

Exposure routes: Inhalation

Potential health effects: Acute systemic effects

Value: 775 mg/m3 End Use: Workers

Exposure routes: Inhalation

Potential health effects: Acute local effects

Value: 333 mg/m3 End Use: Workers

Exposure routes: Skin contact

Potential health effects: Long-term systemic effects

Value: 102 mg/kg End Use: Workers

Exposure routes: Skin contact

Potential health effects: Acute systemic effects

Value: 102 mg/kg End Use: Consumers Exposure routes: Inhalation

Potential health effects: Long-term systemic effects

Value: 67 mg/m3 End Use: Consumers Exposure routes: Inhalation

Potential health effects: Acute systemic effects

Value: 499 mg/m3 End Use: Consumers Exposure routes: Inhalation

Potential health effects: Acute local effects

Value: 166 mg/m3 End Use: Consumers

Exposure routes: Skin contact

Potential health effects: Long-term systemic effects

Value: 36 mg/kg End Use: Consumers

Exposure routes: Skin contact

Potential health effects: Acute systemic effects

Value: 27 mg/kg End Use: Consumers Exposure routes: Ingestion

Potential health effects: Long-term systemic effects

Value: 4.3 mg/kg End Use: Consumers Exposure routes: Ingestion

Potential health effects: Acute systemic effects

Value: 18 mg/kg End Use: Workers

Exposure routes: Inhalation

Potential health effects: Long-term systemic effects

Value: 130 mg/m3 End Use: Workers

Exposure routes: Inhalation

Potential health effects: Acute systemic effects

Value: 958 mg/m3 End Use: Workers

Exposure routes: Skin contact

Potential health effects: Long-term systemic effects

Value: 19 mg/kg End Use: Consumers Exposure routes: Inhalation

Potential health effects: Long-term systemic effects

Value: 28 mg/m3 End Use: Consumers Exposure routes: Inhalation

Potential health effects: Acute systemic effects

Value: 340 mg/m3 End Use: Consumers

Exposure routes: Skin contact

Potential health effects: Long-term systemic effects

Value: 8 mg/kg End Use: Consumers Exposure routes: Ingestion

Potential health effects: Long-term systemic effects

Value: 8 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

γ-butyrolactone:

2-Butoxyethyl acetate : Fresh water

Value: 0.304 mg/l Marine water Value: 0.0304 mg/l Intermittent use/release

Value: 0.56 mg/l

Sewage treatment plant

Value: 90 mg/l

Fresh water sediment Value: 2.03 mg/kg Marine sediment Value: 0.203 mg/kg

Soil

Value: 0.68 mg/kg

Oral

Value: 0.06 g/kg

γ-butyrolactone: Fresh water

Value: 0.056 mg/l Marine water Value: 0.0056 mg/l Intermittent use/release

Value: 0.56 mg/l

Sewage treatment plant

Value: 452 mg/l Fresh water sediment Value: 0.24 mg/kg Marine sediment Value: 0.02 mg/kg

Soil

Value: 0.0147 mg/kg

8.2 Exposure controls

Engineering measures: Ensure adequate ventilation, especially in confined areas.

Minimize workplace exposure concentrations.

Use only in an area equipped with explosion proof exhaust

ventilation.

Personal protective equipment

Eye protection: Wear the following personal protective equipment:

Chemical resistant goggles must be worn.

If splashes are likely to occur, wear: Face-shield

Hand protection

Material: Impervious gloves

Flame retardant gloves

Remarks: Choose gloves to protect hands against chemicals depending

on the concentration and quantity of the hazardous substance

and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end

of workday.

Skin and body protection: Select appropriate protective clothing based on chemical

resistance data and an assessment of the local exposure

potential.

Wear the following personal protective equipment: Flame retardant antistatic protective clothing.

Skin contact must be avoided by using impervious protective

clothing (gloves, aprons, boots, etc).

ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type: Organic vapour type (A)

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance: liquid
Color: yellow
Odor solvent-like

Odor Threshold:

pH:

No data available

No data available

Melting point/freezing point:

No data available

Initial boiling point and

No data available

boiling range:

Flash point: 75 °C

Method: Seta closed cup

Evaporation rate: No data available Flammability (solid, gas) Not applicable Upper explosion limit: 8.54 %(V)

(135 °C)

Lower explosion limit: 0.88 %(V)

(93°C)

Vapour pressure: No data available
Relative vapour density: No data available
Density: 0.96-1.00g/cm3 (25°C)
Water solubility: 1.1 g/l partly soluble

Partition coefficient:

Not applicable

n-octanol/water:

Auto-ignition temperature: No data available
Thermal decomposition: No data available
Viscosity, dynamic: No data available
Explosive properties: Not explosive

Oxidizing properties: The substance or mixture is not classified as oxidizing.

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions: Combustible liquid.

Vapours may form explosive mixture with air.

Can react with strong oxidizing agents.

10.4 Conditions to avoid

Conditions to avoid: Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid: Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Information on likely routes of

exposure:

Inhalation, Skin contact, Ingestion, Eye contact

Acute toxicity: Harmful if swallowed or in contact with skin

Product:

Acute oral toxicity: Acute toxicity estimate: 1,940 mg/kg

Method: Calculation method

Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity: Acute toxicity estimate: 1,765 mg/kg

Method: Calculation method

Components:

<2-Butoxyethyl acetate>

Acute oral toxicity: LD50 (Rat): 1,880 mg/kg

Exposure time: 4 h
Test atmosphere: vapour
Method: Expert judgement

Remarks: Based on harmonised classification in EU

regulation

1272/2008, Annex VI

Acute dermal toxicity: LD50 (Rabbit): 1,500 mg/kg

<γ-butyrolactone>

Acute oral toxicity: LD50 (Rat): 1,582 mg/kg
Acute dermal toxicity: LC50 (Rat): > 5.1 mg/l
Exposure time: 4 h

Test atmosphere: dust/mist

Skin corrosion/irritation: Not classified based on available information.

Components:

<2-Butoxyethyl acetate>

Species: Rabbit

Result: No skin irritation

<y-butyrolactone>

Species: Rabbit

Result: No skin irritation

Serious eye damage/eye irritation: Causes serious eye damage.

Components:

<2-Butoxyethyl acetate>

Species: Rabbit

Result: No eye irritation

<γ-butyrolactone>

Species: Rabbit

Method: OECD Test Guideline 405
Result: Irreversible effects on the eye

Respiratory or skin sensitization:

Skin sensitisation: Not classified based on available information. Respiratory sensitisation: Not classified based on available information.

Components:

<2-Butoxyethyl acetate>

Test Type: Buehler Test
Exposure routes: Skin contact
Species: Guinea pig
Result: negative

<y-butyrolactone>

Test Type: Local lymph node assay (LLNA)

Exposure routes: Skin contact

Species: Mouse

Method: OECD Test Guideline 429

Result: negative

Germ cell mutagenicity Not classified based on available information.

Components:

<2-Butoxyethyl acetate>
Genotoxicity in vitro

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Remarks: Based on data from similar materials

Genotoxicity in vitro

Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay)

Test species: Mouse

Application Route: Intraperitoneal injection

Result: negative

Remarks: Based on data from similar materials

<y-butyrolactone>

Test Type: Bacterial reverse mutation assay (AMES)

Result: negative

Carcinogenicity Not classified based on available information.

Components:

<2-Butoxyethyl acetate>

Species: Rat

Application Route: inhalation (vapour)

Exposure time: 2 Years
Result: negative

Remarks: Based on data from similar materials

<γ-butyrolactone>

Species: Rat

Application Route: Ingestion
Exposure time: 103 weeks
Result: negative

Reproductive toxicity Not classified based on available information.

Components:

<2-Butoxyethyl acetate>

Effects on fertility

Test Type: Two-generation reproduction toxicity study

Species: Mouse
Application Route: Ingestion
Result: negative

Remarks: Based on data from similar materials

Effects on foetal development

Test Type: Embryo-foetal development

Species: Rat

Application Route: Ingestion Result: negative

Remarks: Based on data from similar materials

<γ-butyrolactone>
Effects on fertility

Test Type: Combined repeated dose toxicity study with the

reproduction/developmental toxicity screening test

Species: Rat

Application Route: Ingestion

Method: OECD Test Guideline 422

Result: negative

Remarks: Based on data from similar materials

Effects on foetal development

Test Type: Embryo-foetal development

Species: Rat

Application Route: Ingestion

Remarks: Based on data from similar materials

Result: negative

STOT - single exposure: Not classified based on available information.

Components:

<γ-butyrolactone>

Assessment: May cause drowsiness or dizziness.

STOT - repeated exposure: Not classified based on available information.

Repeated dose toxicity

Components:

<2-Butoxyethyl acetate>

Species: Rat, male

NOAEL: < 69 mg/kg

Application Route: ngestion

Exposure time: 90 d

<γ-butyrolactone>

Species: Rat

NOAEL: 225 mg/kg
Application Route: Ingestion
Exposure time: 13 w

Aspiration toxicity: Not classified based on available information.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Components:

<2-Butoxyethyl acetate>

Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 28 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and EC50 (Daphnia magna (Water flea)): 37 mg/l

other aquatic invertebrates: Exposure time: 48 h

Toxicity to algae: EC50 (Pseudokirchneriella subcapitata (green algae)): 1,570

mg/l

Exposure time: 72 h Method: ISO 8692 IC50: 2,800 mg/l Exposure time: 16 h

Toxicity to daphnia and EC10: 30.4 mg/l other aquatic invertebrates Exposure time: 7 d

other aquatic invertebrates Exposure time: 7 d (Chronic toxicity): Exposure time: 7 d Species: Ceriodaphnia dubia (water flea)

<γ-butyrolactone>

Toxicity to bacteria:

Toxicity to fish: LC50 (Lepomis macrochirus (Bluegill sunfish)): 56 mg/l

Exposure time: 96 h

Toxicity to daphnia and EC50 (Daphnia magna (Water flea)): > 500 mg/l

other aquatic invertebrates: Exposure time: 48 h

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l

Exposure time: 72 h

NOEC (Desmodesmus subspicatus (green algae)): 31.25 mg/l

Exposure time: 72 h

Toxicity to bacteria: IC50 : 4,518 mg/l

Exposure time: 40 h

12.2 Persistence and degradability

Components:

<2-Butoxyethyl acetate>

Biodegradability: Result: Readily biodegradable.

Biodegradation: 88 % Exposure time: 28 d

<y-butyrolactone>

Biodegradability: Result: Readily biodegradable.

Biodegradation: 77 % Exposure time: 14 d

Method: OECD Test Guideline 301C

12.3 Bioaccumulative potential

Components:

<2-Butoxyethyl acetate>

Partition coefficient: n-octanol/water:

log Pow: 1.51

<γ-butyrolactone>

Partition coefficient: log Pow: -0.566

n-octanol/water:

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: Dispose of in accordance with local regulations.

According to the European Waste Catalogue, Waste Codes

are not product specific, but application specific.

Waste codes should be assigned by the user, preferably in

discussion with the waste disposal authorities.

Contaminated packaging: Dispose of as unused product.

Empty containers should be taken to an approved waste

handling site for recycling or disposal.

Do not burn, or use a cutting torch on, the empty drum.

14. TRANSPORT INFORMATION

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Regulation (EC) No 649/2012 of the European Parliament and Not applicable the Council concerning the export and import of dangerous chemicals:

REACH - Candidate List of Substances of Very High Concern Not applicable for Authorisation (Article 59).:

Regulation (EC) No 1005/2009 on substances that deplete the Not applicable ozone layer:

Regulation (EC) No 850/2004 on persistent organic pollutants: Not applicable

Seveso II - Directive 2003/105/EC amending Council Directive Not applicable 96/82/EC on the control of major-accident hazards involving dangerous substances:

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has not been carried out.

16. OTHER INFORMATION

Full text of R-Phrases

R20/21/22: Harmful by inhalation, in contact with skin and if swallowed.

R22:Harmful if swallowed.

R41:Risk of serious damage to eyes.

R67: Vapours may cause drowsiness and dizziness.

Full text of H-Statements

H302: Harmful if swallowed.

H312: Harmful in contact with skin.

H318: Causes serious eye damage.

H332: Harmful if inhaled.

H336:May cause drowsiness or dizziness.

Full text of other abbreviations

Acute Tox.: Acute toxicity.

Eye Dam.: Serious eye damage.

STOT SE: Specific target organ toxicity - single exposure.

2000/39/EC: Europe. Commission Directive 2000/39/EC establishing a first list of

indicative occupational exposure limit values

GB EH40: UK. EH40 WEL - Workplace Exposure Limits.

2000/39/EC / TWA: Limit Value - eight hours. 2000/39/EC / STEL: Short term exposure limit.

GB EH40 / TWA: Long-term exposure limit (8-hour TWA reference period).
GB EH40 / STEL: Short-term exposure limit (15-minute reference period).

Further information

Sources of key data used to compile the Safety Data Sheet:

Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.