

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- 1.1. Product identifier
Mixture identification:
Trade name: Ink cartridge, T43U4
- 1.2. Relevant identified uses of the substance or mixture and uses advised against
Recommended use:
Ink for inkjet printing
- 1.3. Details of the supplier of the safety data sheet
Company:
SEIKO EPSON CORPORATION
80 Harashinden, Hirooka, Shiojiri-shi, Nagano-ken, 399-0785 JAPAN
Phone number: +81-263-52-2552
Competent person responsible for the safety data sheet:
MSDS_HRO@exc.epson.co.jp
Date: 15/10/2018
Revision: 2.0
- 1.4. Emergency telephone number
Phone number: +81-263-52-2552

SECTION 2: Hazards identification

- 2.1. Classification of the substance or mixture
EC regulation criteria 1272/2008 (CLP)
The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).
Adverse physicochemical, human health and environmental effects:
No other hazards
- 2.2. Label elements
The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).
Hazard pictograms:
None
Hazard statements:
None
Precautionary statements:
None
Special Provisions:
EUH210 Safety data sheet available on request.
EUH208 Contains 2,4,7,9-tetramethyldec-5-yne-4,7-diol. May produce an allergic reaction.
Special provisions according to Annex XVII of REACH and subsequent amendments:
None
- 2.3. Other hazards
vPvB Substances: None - PBT Substances: None
Other Hazards:
No other hazards

SECTION 3: Composition/information on ingredients

- 3.1. Substances
No
- 3.2. Mixtures
Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Number	Classification
65% ~	Water	CAS: 7732-18-5	The product is not classified as

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80%		EC: 231-791-2	dangerous according to Regulation EC 1272/2008 (CLP).
10% ~ 12.5%	Glycerol	CAS: 56-81-5 EC: 200-289-5	The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).
7% ~ 10%	2-[2-(2-butoxyethoxy)ethoxy]ethanol; TEGBE; triethylene glycol monobutyl ether	Index number: 603-183-00-0 CAS: 143-22-6 EC: 205-592-6 REACH No.: 01-21194751 07-38	 3.3/1 Eye Dam. 1 H318
0.25% ~ 0.5%	2,4,7,9-tetramethyldec-5-yne-4,7-diol	CAS: 126-86-3 EC: 204-809-1	 3.3/1 Eye Dam. 1 H318  3.4.2/1B Skin Sens. 1B H317 4.1/C3 Aquatic Chronic 3 H412
0.25% ~ 0.5%	Triethanol amine	CAS: 102-71-6 EC: 203-049-8	The product is not classified as dangerous according to Regulation EC 1272/2008 (CLP).

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Wash with plenty of water and soap.

In case of eyes contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

In case of Ingestion:

Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

4.2. Most important symptoms and effects, both acute and delayed

None

4.3. Indication of any immediate medical attention and special treatment needed

Treatment:

None

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- Wear personal protection equipment.
- Remove persons to safety.
- See protective measures under point 7 and 8.
- 6.2. Environmental precautions
 - Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
 - Retain contaminated washing water and dispose it.
 - In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
 - Suitable material for taking up: absorbing material, organic, sand
- 6.3. Methods and material for containment and cleaning up
 - Wash with plenty of water.
- 6.4. Reference to other sections
 - See also section 8 and 13

SECTION 7: Handling and storage

- 7.1. Precautions for safe handling
 - Avoid contact with skin and eyes, inhalation of vapours and mists.
 - Do not eat or drink while working.
 - See also section 8 for recommended protective equipment.
- 7.2. Conditions for safe storage, including any incompatibilities
 - Keep away from food, drink and feed.
 - Incompatible materials:
 - None in particular.
 - Instructions as regards storage premises:
 - Adequately ventilated premises.
- 7.3. Specific end use(s)
 - None in particular

SECTION 8: Exposure controls/personal protection

- 8.1. Control parameters
 - Glycerol - CAS: 56-81-5
 - OEL Type: OSHA - TWA: 5 mg/m³ - Notes: Respirable dust
 - OEL Type: OSHA - TWA: 15 mg/m³ - Notes: Total dust
 - Triethanol amine - CAS: 102-71-6
 - OEL Type: ACGIH - TWA(8h): 5 mg/m³
 - DNEL Exposure Limit Values
 - No data available
 - PNEC Exposure Limit Values
 - 2-[2-(2-butoxyethoxy)ethoxy]ethanol; TEGBE; triethylene glycol monobutyl ether - CAS: 143-22-6
 - Target: Fresh Water - Value: 1.5 mg/l
 - Target: Freshwater sediments - Value: 5.77 mg/kg
 - Target: Marine water - Value: 0.15 mg/l
 - Target: Marine water sediments - Value: 0.13 mg/kg
 - Target: Microorganisms in sewage treatments - Value: 200 mg/l
 - 2,4,7,9-tetramethyldec-5-yne-4,7-diol - CAS: 126-86-3
 - Target: Fresh Water - Value: 0.04 mg/l
 - Target: Marine water - Value: 0.004 mg/l
 - Target: Freshwater sediments - Value: 0.32 mg/kg
 - Target: Marine water sediments - Value: 0.032 mg/kg
- 8.2. Exposure controls
 - 8.2.1. Appropriate engineering controls:
 - None
 - 8.2.2. Individual protection measures, such as personal protective equipment
 - Eye protection:
 - Not needed for normal use. Anyway, operate according good working practices.

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Protection for skin:

No special precaution must be adopted for normal use.

Protection for hands:

Not needed for normal use.

Respiratory protection:

Not needed for normal use.

Thermal Hazards:

None

8.2.3. Environmental exposure controls:

None

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance and colour:	Yellow Liquid
Odour:	Slightly
Odour threshold:	No data available
PH:	8.7 ~ 9.7 at 20 °C
Melting point / freezing point:	No data available
Initial boiling point and boiling range:	No data available
Solid/gas flammability:	No data available
Upper/lower flammability or explosive limits:	No data available
Vapour density:	No data available
Flash point:	Does not flash until 100 °C / 212 °F (closed cup method, ASTM D 3278)
Evaporation rate:	No data available
Vapour pressure:	No data available
Relative density:	No data available
Solubility in water:	Complete
Solubility in oil:	No data available
Partition coefficient (n-octanol/water):	No data available
Auto-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	< 5 mPa·s at 20 °C
Explosive properties:	No data available
Oxidizing properties:	No data available

9.2. Other information

Miscibility:	No data available
Fat Solubility:	No data available
Conductivity:	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological information of the product:

e) germ cell mutagenicity:

Test: Mutagenesis - Species: Salmonella Typhimurium and Escherichia coli
Negative

f) carcinogenicity:

Does not contain carcinogens (Ref. 1)

g) reproductive toxicity:

Does not contain reproductive toxicity and developmental toxic substances (Ref. 2)

Toxicological information of the main substances found in the product:

Glycerol - CAS: 56-81-5

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Guinea pig = 7750 mg/kg - Source: Journal of Industrial Hygiene and Toxicology. Vol. 23, Pg. 259, 1941

Test: LDLo - Route: Oral - Species: Human = 1428 mg/kg - Source: "Toxicology of Drugs and Chemicals," Deichmann, W.B., New York, Academic Press, Inc., 1969 Vol. -, Pg. 288, 1969.

2-[2-(2-butoxyethoxy)ethoxy]ethanol; TEGBE; triethylene glycol monobutyl ether - CAS: 143-22-6

a) acute toxicity:

Test: LD50 - Route: Dermal - Species: Rabbit = 3.54 ml/kg - Source: American Industrial Hygiene Association Journal. Vol. 23, Pg. 95, 1962.

Test: LD50 - Route: Oral - Species: Rat = 5300 mg/kg - Source: Office of Toxic Substances Report. Vol. OTS,

2,4,7,9-tetramethyldec-5-yne-4,7-diol - CAS: 126-86-3

a) acute toxicity:

Test: LD50 - Route: Dermal - Species: Rat > 2000 mg/kg

b) skin corrosion/irritation:

Test: Skin Irritant - Species: Rabbit Mild irritant

c) serious eye damage/irritation:

Test: Eye Irritant - Species: Rabbit Highly irritating

d) respiratory or skin sensitisation:

Test: Skin Sensitisation - Route: LLNA - Species: Mouse Sensitiser

e) germ cell mutagenicity:

Test: Mutagenesis - Species: Salmonella Typhimurium Negative

Triethanol amine - CAS: 102-71-6

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Guinea pig = 2200 mg/kg - Source:

"Toxicometric Parameters of Industrial Toxic Chemicals Under Single Exposure," Izmerov, N.F., et al., Moscow, Centre of International Projects, GKNT, 1982 Vol. -, Pg. 114, 1982.

Test: LD50 - Route: Oral - Species: Mouse = 5846 mg/kg - Source: Science Reports of the Research Institutes, Tohoku University, Series C: Medicine. Vol. 36(1-4), Pg. 10, 1989.

If not differently specified, the information required in Regulation (EU) 2015/830 listed below must be considered as 'No data available':

a) acute toxicity;

b) skin corrosion/irritation;

c) serious eye damage/irritation;

d) respiratory or skin sensitisation;

e) germ cell mutagenicity;

f) carcinogenicity;

g) reproductive toxicity;

h) STOT-single exposure;

- i) STOT-repeated exposure;
- j) aspiration hazard.

SECTION 12: Ecological information

- 12.1. Toxicity
 - Adopt good working practices, so that the product is not released into the environment.
 - 2,4,7,9-tetramethyldec-5-yne-4,7-diol - CAS: 126-86-3
 - a) Aquatic acute toxicity:
 - Endpoint: LC50 - Species: Fish = 36 mg/l - Duration h: 96
 - Endpoint: EC50 - Species: Daphnia = 88 mg/l - Duration h: 48
 - Endpoint: EC50 - Species: Algae = 15 mg/l - Duration h: 72
 - c) Bacteria toxicity:
 - Endpoint: EC50 - Species: activated sludge = 630 mg/l - Duration h: 0.5
- 12.2. Persistence and degradability
 - No data available
- 12.3. Bioaccumulative potential
 - No data available
- 12.4. Mobility in soil
 - No data available
- 12.5. Results of PBT and vPvB assessment
 - vPvB Substances: None - PBT Substances: None
- 12.6. Other adverse effects
 - None

SECTION 13: Disposal considerations

- 13.1. Waste treatment methods
 - Recover if possible. In so doing, comply with the local and national regulations currently in force.

SECTION 14: Transport information

- 14.1. UN number
 - Not classified as dangerous in the meaning of transport regulations.
- 14.2. UN proper shipping name
 - No data available
- 14.3. Transport hazard class(es)
 - No data available
- 14.4. Packing group
 - No data available
- 14.5. Environmental hazards
 - No data available
- 14.6. Special precautions for user
 - No data available
- 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
 - No data available

SECTION 15: Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
 - Dir. 98/24/EC (Risks related to chemical agents at work)
 - Dir. 2000/39/EC (Occupational exposure limit values)
 - Regulation (EC) n. 1907/2006 (REACH)
 - Regulation (EC) n. 1272/2008 (CLP)
 - Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
 - Regulation (EU) 2015/830
 - Regulation (EU) n. 286/2011 (ATP 2 CLP)
 - Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)

Restrictions related to the product or the substances contained according to Annex XVII
Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product:

No restriction.

Restrictions related to the substances contained:

No restriction.

Where applicable, refer to the following regulatory provisions :

Directive 2012/18/EU (Seveso III)

Regulation (EC) nr 648/2004 (detergents).

Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):

Seveso III category according to Annex 1, part 1

None

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

Full text of phrases referred to in Section 3:

H318 Causes serious eye damage.

H317 May cause an allergic skin reaction.

H412 Harmful to aquatic life with long lasting effects.

Hazard class and hazard category	Code	Description
Eye Dam. 1	3.3/1	Serious eye damage, Category 1
Skin Sens. 1B	3.4.2/1B	Skin Sensitisation, Category 1B
Aquatic Chronic 3	4.1/C3	Chronic (long term) aquatic hazard, category 3

Paragraphs modified from the previous revision:

SECTION 1: Identification of the substance/mixture and of the company/undertaking

SECTION 2: Hazards identification

SECTION 3: Composition/information on ingredients

SECTION 8: Exposure controls/personal protection

SECTION 9: Physical and chemical properties

SECTION 11: Toxicological information

SECTION 12: Ecological information

SECTION 14: Transport information

SECTION 15: Regulatory information

SECTION 16: Other information

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre,
Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van
Nostrand Reinold

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- Ref. 1 · IARC Monographs on the Evaluation Carcinogenic Risks to Humans (IARC: International Agency for Research on Cancer)
 · Journal of Occupational Health (JOH) (Japan Society of Occupational Health (JSOH))
 · TLVs and BEIs (ACGIH: American Conference of Governmental Industrial Hygienists)
 · IRIS Carcinogenic Assessment (IRIS: Integrated Risk Information System of US EPA)
 · National Toxicology Program (NTP) Report on Carcinogens (USA)
 · Annex VI of REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
 · MAK und BAT Werte Liste (DFG: German Research Foundation)
 · TRGS 905, Verzeichnis krebserzeugender, keimzell mutagener oder reproduktionstoxischer Stoffe (AGS: Committee on Hazardous Substances, Germany)
- Ref. 2 · Annex VI of REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
 · TRGS 905, Verzeichnis krebserzeugender, keimzell mutagener oder reproduktionstoxischer Stoffe (AGS: Committee on Hazardous Substances, Germany)

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This Safety Data Sheet cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWA:	Time-weighted average
WGK:	German Water Hazard Class.