SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 01.02.2021 Version 1.7 GB:IE:MT / EN

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

1.1 Product identifier : INK-0301

Trade name : Eco Solvent Ultra

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

Use of the Sub-stance/Mixture : Digital Printing

1.3 Details of the supplier of the safety data sheet

Company : MUTOH Europe nv
Archimedesstraat 13, 8400 Oostende, Belgium

Telephone : +32 (0)59 56 14 00

E-mail address : sds@mutoh.eu
Further information obtainable from : sds@mutoh.co.jp

1.4 Emergency telephone number

+32 (0) 59 56 14 00 During normal opening times

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2	H315: Causes skin irritation.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Reproductive toxicity, Category 1B	H360: May damage fertility or the unborn child.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :

H315	Causes skin irritation.
H318	Causes serious eye damage.
H360	May damage fertility or the unborn child

Precautionary statements :

Prevention:

P201	Obtain special instructions before use.
P280	Wear protective gloves/ eye protection/ face protection.

Response:

P305 + P351 + P338 + P310
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313	Immediately call a POISON CENTRE/doctor. IF exposed or concerned: Get medical advice/ attention.

Hazardous components which must be listed on the label:
- Gamma-Butyrolactone
- bis(2-(2-methoxyethoxy)ethyl) ether

Additional Labelling:

Restricted to professional users.

2.3 Other hazards

no data available

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Hazardous components

Chemical Name	CAS-No. EC-No. REACH-No.	Classification (1272/2008/EC)	Concentration [%]
Bis(2-ethoxyethyl) ether	112-36-7 203-963-7 01-2119969946-13	Skin Irrit. 2; H315	55-65
Gamma-Butyrolactone	96-48-0 202-509-5	Acute Tox. 4; H302 Eye Dam. 1; H318	< 20
bis(2-(2-methoxyethoxy)ethyl) ether	143-24-8 205-594-7 01-2119958965-16	Repr. 1B; H360	10 - 20

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 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 (show the label where possible). First aider needs to protect himself. Move out of dangerous area. Never give anything by mouth to an unconscious person. Take off contaminated clothing and shoes immediately.

If inhaled : If breathed in, move person into fresh air. Keep patient warm and at rest. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

In case of skin contact : Call a physician immediately. In case of contact, immediately flush skin with soap and plenty of water. Do NOT use solvents or thinners.

In case of eye contact : Protect unharmed eye. If easy to do, remove contact lens, if worn. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed : Take victim immediately to hospital. If swallowed, DO NOT induce vomiting. If a person vomits when lying on his back, place him in the recovery position.

4.2 Most important symptoms and effects, both acute and delayed

no data available

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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. Hazardous decomposition products may be formed under fire conditions (see section 10). Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

Special protective equipment firefighters	:	In the event of fire, wear self-contained breathing apparatus. for Use personal protective equipment.
Further information	:	Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water sepa- rately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Refer to protective measures listed in sections 7 and 8. Use personal protective equipment. Avoid contact with skin and eyes. Ensure adequate ventilation, especially in confined areas. Immediately evacuate personnel to safe areas. Avoid inhalation of vapour or mist.

6.2 Environmental precautions

Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Pick up and transfer to properly labelled containers. Clean contaminated surface thoroughly.

6.4 Reference to other sections

see chapter: 7, 8, 11, 12 and 13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	For personal protection see section 8. Avoid exposure - obtain special instructions before use. Limit the stocks at work place. Use with local exhaust ventilation. Do not breathe vapours or spray mist. Avoid contact with skin and eyes. Handle with care.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Dust explosion class	:	not applicable

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep locked up or in an area accessible only to qualified or authorised persons. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place.
Advice on common storage	:	Incompatible with oxidizing agents. Incompatible with acids and bases. Keep away from food, drink and animal feedingstuffs.
Other data	:	No decomposition if stored and applied as directed.

7.3 Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

8.1.1 Occupational Exposure Limits
8.1.1.1 Great Britain

Components	CAS-No.	Control parameters	Basis	Update
Carbon black	1333-86-4	TWA: 3,5 mg/m3, STEL: 7 mg/m3,	GB EH40	2005-04-06

Other information on limit values: see chapter 16

8.1.1.2 Ireland

Components	CAS-No.	Control parameters	Basis	Update
Carbon black	1333-86-4	OELV - 8 hrs (TWA): 3,5 mg/m3, OELV - 15 min (STEL): 7 mg/m3,	IE OEL	2002-03-12

Other information on limit values: see chapter 16

8.1.1.3 Malta

Contains no substances with occupational exposure limit values.

Other information on limit values: see chapter 16

8.1.2 Derived No Effect Level (DNEL)

Bis(2-ethoxyethyl) ether : End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 50.5 mg/m3
End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 3.43 mg/kg bw/day
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 5.96 mg/m3
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 1.71 mg/kg bw/day
End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Long-term systemic effects
Value: 300 mg/kg bw/day

bis(2-(2-methoxyethoxy)ethyl)ether : End Use: Workers
Exposure routes: Inhalation

Potential health effects: Long-term systemic effects
Value: 22 mg/m3
End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 3 mg/kg bw/day
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 0.5 mg/m3
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 0.001 mg/kg bw/day
End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Long-term systemic effects
Value: 0.001 mg/kg bw/day

Carbon black : End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 0.06 mg/m3
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 1 mg/m3

Gamma-Butyrolactone : 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 ef-fects
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: Ingestion
Potential health effects: Long-term systemic effects
Value: 340 mg/m3
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 8 mg/kg bw/day
End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Long-term systemic effects
Value: 8 mg/kg bw/day

8.1.3 Predicted No Effect Concentration (PNEC)

bis(2-(2-methoxyethoxy)ethyl)ether : Fresh water
Value: 32 mg/l
Marine water
Value: 3.2 mg/l
Intermittent use/release
Value: 50 mg/l
Sewage treatment plant
Value: 500 mg/l
Fresh water sediment
Value: 127 mg/kg
Marine sediment
Value: 12.7 mg/kg

	Soil Value: 6.7 mg/kg Oral Value: 8.32 mg/kg
Carbon black	: Fresh water Value: 50 mg/l
Gamma-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

Provide sufficient air exchange and/or exhaust in work rooms. Highly effective exhaust ventilation

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.

Eye protection : In case of splash hazard, please wear protective goggles.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
General industrial hygiene practice.
Avoid breathing vapours, mist or gas.
Avoid contact with skin, eyes and clothing.
When using do not eat, drink or smoke.
Wash hands before breaks and at the end of workday. Follow the skin protection plan.
Take off all contaminated clothing immediately. Wash contaminated clothing before re-use.

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	black,cyan,magenta
Odour	:	very faint
Odour Threshold	:	no data available
Flash point	:	> 71 °C Method: closed cup
Ignition temperature	:	no data available
Thermal decomposition	:	no data available
Lower explosion limit	:	no data available
Upper explosion limit	:	no data available
Explosive properties	:	no data available
Flammability	:	no data available
Oxidizing properties	:	no data available
Auto-ignition temperature	:	no data available
Burning number	:	no data available
Molecular Weight	:	no data available
pH	:	no data available
Vapour pressure	:	no data available
Density	:	no data available
Bulk density	:	no data available
Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	no data available
Solubility in other solvents	:	no data available
Viscosity	:	< 5 mPa.s (20 °C)
Flow time	:	no data available
Impact Sensitivity	:	no data available
Relative vapour density	:	no data available
Surface tension	:	no data available
Evaporation rate	:	no data available
Minimum ignition energy	:	no data available
Acid number	:	no data available
Refraction index	:	no data available
Miscibility in water	:	no data available
Solvent separation test	:	no data available

9.2 Other information

None known.

SECTION 10: Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

The product is chemically stable.

10.3 Possibility of hazardous reactions

Stability	:	No decomposition if stored and applied as directed.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Materials to avoid	:	Oxidizing agents, Acids and bases

10.6 Hazardous decomposition products

Hazardous decomposition products	:	In case of fire hazardous decomposition products may be produced such as:, Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity	:	Acute toxicity estimate : > 2.000 mg/kg Method: Calculation method
Acute inhalation toxicity:		
Gamma-Butyrolactone	:	LC50 rat: > 2,86 mg/l Exposure time: 4 h Method: OECD Test Guideline 403
bis(2-(2-methoxyethoxy)ethyl) ether	:	LC0 rat, male and female: 11 mg/l Test atmosphere: vapour Exposure time: 7 h Method: OECD Test Guideline 403
Acute dermal toxicity:		
bis(2-(2-methoxyethoxy)ethyl) ether	:	LD50 rat, male: > 6.900 mg/kg Method: OECD Test Guideline 402

Acute toxicity (other routes of administration):

no data available

Skin corrosion/irritation

Bis(2-ethoxyethyl) ether	:	irritating
Gamma-Butyrolactone	:	Species: rabbit No skin irritation
bis(2-(2-methoxyethoxy)ethyl) ether	:	No skin irritation Method: OECD Test Guideline 404

Serious eye damage/eye irritation

Gamma-Butyrolactone	:	Species: rabbit Risk of serious damage to eyes.
bis(2-(2-methoxyethoxy)ethyl) ether	:	No eye irritation Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Sensitisation:

bis(2-(2-methoxyethoxy)ethyl) ether	:	Result: Does not cause skin sensitisation. Method: OECD Test Guideline 406

Germ cell mutagenicity

Genotoxicity in vitro:

bis(2-(2-methoxyethoxy)ethyl) ether	:	Type: Mutagenicity (Escherichia coli - reverse mutation assay) with and without metabolic activation Result: negative Method: OECD Test Guideline 471

Genotoxicity in vivo:

bis(2-(2-methoxyethoxy)ethyl) ether	:	Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis) Test species: hamster Sex: male and female Result: negative Method: OECD Test Guideline 475

Carcinogenicity

no data available

Reproductive toxicity

bis(2-(2-methoxyethoxy)ethyl) ether	:	Note: Presumed human reproductive toxicant, May damage the unborn child. Suspected of damaging fertility.

Teratogenicity

no data available

STOT - single exposure

no data available

STOT - repeated exposure

no data available

Aspiration hazard

Aspiration toxicity

no data available

Neurological effects

no data available

Toxicology Assessment

Toxicology, Metabolism, Distribution

no data available

Acute effects

no data available

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish

Gamma-Butyrolactone	:	LC50 (Leuciscus idus (Golden orfe)): > 220 mg/l Exposure time: 96 h Method: DIN 38412
bis(2-(2-methoxyethoxy)ethyl) ether	:	LC50 (Brachydanio rerio): > 5.000 mg/l Exposure time: 96 h Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Gamma-Butyrolactone	:	EC50 (Daphnia magna (Water flea)): > 500 mg/l Exposure time: 48 h
bis(2-(2-methoxyethoxy)ethyl) ether	:	EC50 (Daphnia magna (Water flea)): 7.467 mg/l Exposure time: 48 h Method: OECD Test Guideline 202

Toxicity to algae

bis(2-(2-methoxyethoxy)ethyl) ether	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 8.996 mg/l Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to bacteria

Gamma-Butyrolactone	:	EC50 (Pseudomonas putida): > 10.000 mg/l Exposure time: 17 h
bis(2-(2-methoxyethoxy)ethyl) ether	:	EC10 : >= 5.000 mg/l Exposure time: 3 h Test Method: Respiration inhibition of activated sludge Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

bis(2-(2-methoxyethoxy)ethyl) ether	:	NOEC: 320 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

12.2 Persistence and degradability

Biodegradability

bis(2-(2-methoxyethoxy)ethyl) ether	:	Result: According to the results of tests of biodegradability this product is not readily biodegradable. Method: OECD Test Guideline 302B

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

Additional ecological information	:	The product should not be allowed to enter drains, water courses or the soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Advice on disposal and : Packaging		Disposal: In accordance with local and national regulations. Do not dispose of waste into sewer. This material and its container must be disposed of in a safe way. Do not dispose of together with household waste. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

14.1 UN number

ADN
Not dangerous goods
ADR
Not dangerous goods
RID
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

14.2 Proper shipping name

ADN
Not dangerous goods
ADR
Not dangerous goods
RID
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

14.3Transport hazard class(es)
ADN
Not dangerous goods
ADR
Not dangerous goods
RID
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

14.4 Packing group
ADN
Not dangerous goods
ADR
Not dangerous goods
RID
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

14.5 Environmental hazards
ADN
Not dangerous goods
ADR
Not dangerous goods
RID
Not dangerous goods
IMDG
Not dangerous goods
IATA
Not dangerous goods

14.6 Special precautions for user
see chapter: 6, 7 and 8

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

SECTION 15: Regulatory information

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

VOC	:	85 %
Directive 96/82/EC	:	Update: 2003 Directive 96/82/EC does not apply
Further information	:	Reserved for industrial and professional use.

National legislation

Other regulations	:	Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

Take note of Dir 94/33/EC on the protection of young people at work.

REACH - Candidate List of Substances of Very HighConcern for Authorisation (Article 59). : bis(2-(2-methoxyethoxy)ethyl)ether

15.2 Chemical Safety Assessment

no data available

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H360	May damage fertility or the unborn child.

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 given is designed only as a guid- ance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.