

Product Name: LC501C, LC504C, LC511C, LC514C, LC521C, LC522C, LC531C, LC551C ink

Revision date: -

Issuing Date: 09-Apr-2025

Revision Number: 1

Safety data sheet number: BHC336

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

1.1. Product identifier

Safety data sheet number BHC336

Product Name LC501C, LC504C, LC511C, LC514C, LC521C, LC522C, LC531C, LC551C ink

Other means of identification

Pure substance/mixture Mixture

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

Recommended use These products are dark blue ink in a cartridge for Brother Industries, Ltd. inkjet multifunction devices and fax receivers. The cartridge should be used as supplied by Brother and for use in the products stated. Information provided on this SDS is only consistent with the use specified by Brother.

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Manufacturer

Brother Industries, Ltd.
15-1 Naeshiro-cho, Mizuho-ku, Nagoya 467-8561, Japan
Telephone (for information): +81-52-824-2735

Supplier

(Europe)
Brother International (Nederland) B.V.
Zanderij 25, 1185 ZM Amstelveen, The Netherlands

Brother International Europe Ltd.
1 Tame Street, Audenshaw, Manchester M34 5JE, UK
Telephone (for information): +44-161-330-6531
For further information, please contact

E-mail address sds.info@brother.co.jp

1.4. Emergency telephone number

Emergency Telephone CHEMTREC +1-703-527-3887 (International)

For France only:
Antipoison Center telephone number: ORFILA +33-1-45-425-959

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

Hazard statements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

EUH208 - Contains 1,2-benzisothiazol-3(2H)-one May produce an allergic reaction.

Unknown acute toxicity

- 0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.
- 0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.
- 25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).
- 25 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).
- 5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Unknown aquatic toxicity

Contains 0 % of components with unknown hazards to the aquatic environment.

2.3. Other hazards

This product contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This product contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	CAS No.	EC No (EU Index No)	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)	REACH registration number
Water	7732-18-5	231-791-2	65-75	No data available	-	-	-	Not applicable
Glycerol	56-81-5	200-289-5	10-20	No data	-	-	-	Not

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Diethylene glycol	111-46-6	203-872-2 (603-140-00-6)	5-9	available Acute Tox. 4 (H302)	-	-	-	applicable Not applicable
Triethylene glycol, monobutyl ether	143-22-6	205-592-6 (603-183-00-0)	1-5	Eye Dam. 1 (H318)	Eye Dam. 1 :: C>=30% Eye Irrit. 2 :: 20%<=C<30%	-	-	01-21194751 07-38-XXXX
Triethanolamine	102-71-6	203-049-8	<1	No data available	-	-	-	Not applicable
1,2-benzisothiazol-3(2H)-one	2634-33-5	220-120-9 (613-088-00-6)	<0.05	Acute Tox. 2 (H330) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1A (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	Skin Sens. 1A :: C>=0.036%	1	1	Not applicable

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

If LD₅₀/LC₅₀ data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Water 7732-18-5	89838.9	No data available	No data available	No data available	No data available
Glycerol 56-81-5	27200	10000	5.85	No data available	No data available
Diethylene glycol 111-46-6	12565	11890	4.6	No data available	No data available
Triethylene glycol, monobutyl ether 143-22-6	5300	3540	No data available	No data available	No data available
Triethanolamine 102-71-6	4190	20000	No data available	No data available	No data available
1,2-benzisothiazol-3(2H)-one	450	2000	0.21	No data available	No data available

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Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
2634-33-5					

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	If symptoms persist, call a physician.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention.
Eye contact	In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Skin contact:	Wash skin with soap and water. Get medical attention if irritation develops and persists.
Ingestion	Obtain immediate medical attention. Wash out mouth with water and give 100-200 ml of water to drink.
Self-protection of the first aider	No information available.

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

Symptoms	Inhalation : No specific effects and/or symptoms have been reported or known For large quantities: May cause irritation to the respiratory system. Increased difficulty in breathing. Sneezing. Coughing
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4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical, CO ₂ , water spray or regular foam
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5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Thermal decomposition can lead to release of irritating and toxic gases and vapors Carbon monoxide Carbon dioxide (CO₂) Nitrogen oxides (NO_x) Oxides of sulfur

5.3. Advice for firefighters

Special protective equipment for fire-fighters Wear self contained breathing apparatus for fire fighting if necessary.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with eyes, skin and clothing

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas

6.3. Methods and material for containment and cleaning up

Methods for containment Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Wipe up with absorbent towel Wash with water to remove remaining traces of ink.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Avoid contact with eyes, skin and clothing.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep out of the reach of children. Keep cool. Protect from sunlight.

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7.3. Specific end use(s)

Specific use(s)

These products are dark blue ink in a cartridge for Brother Industries, Ltd. inkjet multifunction devices and fax receivers. The cartridge should be used as supplied by Brother and for use in the products stated.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Glycerol 56-81-5	-	-	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³
Diethylene glycol 111-46-6	-	TWA: 10 ppm TWA: 44 mg/m ³ STEL 40 ppm STEL 176 mg/m ³	-	TWA: 10 mg/m ³	TWA: 23 ppm TWA: 101 mg/m ³
Triethanolamine 102-71-6	-	TWA: 0.8 ppm TWA: 5 mg/m ³ STEL 1.6 ppm STEL 10 mg/m ³ S+	TWA: 5 mg/m ³	-	-
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Glycerol 56-81-5	-	TWA: 10 mg/m ³ Ceiling: 15 mg/m ³	-	TWA: 10 mg/m ³	TWA: 20 mg/m ³
Diethylene glycol 111-46-6	-	-	TWA: 2.5 ppm TWA: 11 mg/m ³ STEL: 5 ppm STEL: 22 mg/m ³	TWA: 10 ppm TWA: 45 mg/m ³ STEL: 20 ppm STEL: 90 mg/m ³ A*	-
Triethanolamine 102-71-6	-	TWA: 5 mg/m ³ Ceiling: 10 mg/m ³ D*	TWA: 0.5 ppm TWA: 3.1 mg/m ³ STEL: 1 ppm STEL: 6.2 mg/m ³	S+ TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 5 mg/m ³
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Glycerol 56-81-5	TWA: 10 mg/m ³	TWA: 200 mg/m ³	TWA: 200 mg/m ³ Peak: 400 mg/m ³	TWA: 10 mg/m ³	-
Diethylene glycol 111-46-6	-	TWA: 10 ppm TWA: 44 mg/m ³	TWA: 10 ppm TWA: 44 mg/m ³ Peak: 40 ppm Peak: 176 mg/m ³	-	-
Triethanolamine 102-71-6	-	TWA: 1 mg/m ³	TWA: 1 mg/m ³ Peak: 1 mg/m ³	-	-

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1,2-benzisothiazol-3(2H)-one 2634-33-5	-	-	skin sensitizer	-	-
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Diethylene glycol 111-46-6	TWA: 23 ppm TWA: 100 mg/m ³ STEL: 69 ppm STEL: 300 mg/m ³	-	-	TWA: 10 mg/m ³	O* TWA: 10 ppm TWA: 45 mg/m ³ STEL: 20 ppm STEL: 90 mg/m ³
Triethanolamine 102-71-6	TWA: 5 mg/m ³ STEL: 15 mg/m ³	-	TWA: 5 mg/m ³	-	J+ TWA: 5 mg/m ³ STEL: 10 mg/m ³
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Glycerol 56-81-5	-	-	-	-	TWA: 10 mg/m ³
Diethylene glycol 111-46-6	-	-	-	-	TWA: 10 mg/m ³
Triethanolamine 102-71-6	-	-	-	TWA: 5 mg/m ³ STEL: 10 mg/m ³	-
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Glycerol 56-81-5	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³	TWA: 200 mg/m ³ STEL: 400 mg/m ³	TWA: 10 mg/m ³
Diethylene glycol 111-46-6	-	TWA: 115 ppm TWA: 500 mg/m ³ STEL: 184 ppm STEL: 800 mg/m ³	TWA: 10 ppm TWA: 44 mg/m ³ Ceiling: 90 mg/m ³	TWA: 10 ppm TWA: 44 mg/m ³ STEL: 40 ppm STEL: 176 mg/m ³	-
Triethanolamine 102-71-6	TWA: 5 mg/m ³	-	-	-	TWA: 5 mg/m ³
Chemical name	Sweden		Switzerland		United Kingdom
Glycerol 56-81-5	-		TWA: 50 mg/m ³ STEL: 100 mg/m ³		TWA: 10 mg/m ³ STEL: 30 mg/m ³
Diethylene glycol 111-46-6	NGV: 10 ppm NGV: 45 mg/m ³ Vägledande KGV: 20 ppm Vägledande KGV: 90 mg/m ³ H*		TWA: 10 ppm TWA: 44 mg/m ³ STEL: 40 ppm STEL: 176 mg/m ³		TWA: 23 ppm TWA: 101 mg/m ³ STEL: 69 ppm STEL: 303 mg/m ³
Triethanolamine 102-71-6	NGV: 5 mg/m ³ NGV: 0.8 ppm Vägledande KGV: 10 mg/m ³ Vägledande KGV: 1.6 ppm H*		TWA: 5 mg/m ³ STEL: 5 mg/m ³		-

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers No information available

Derived No Effect Level (DNEL) - General Public No information available.

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Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Appropriate engineering controls	Good general ventilation should be sufficient under normal use.
Personal protective equipment	Not normally required. For use other than in normal operating procedures (such as in the event of large spill), the following should be applied:
Eye/face protection	Safety goggles
Hand protection	Protective gloves
Skin and body protection	Apron, Rubber boots
Respiratory protection	In case of large spillages: Wear suitable respiratory protective equipment.
Thermal hazards	No information available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Color	dark blue
Odor	Slight
Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	< -5 °C	
Initial boiling point and boiling range	> 100 °C	
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	> 93.3 °C	Tag Closed Cup, Cleveland Open Cup
Autoignition temperature	> 400 °C	
Decomposition temperature	No data available	None known
pH	7 - 9	
pH (as aqueous solution)	No information available	None known

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Kinematic viscosity		None known
Dynamic viscosity	2 - 5 mPa·s	
Water solubility	Soluble in water	
Solubility(ies)	No information available	None known
Partition coefficient	No data available	None known
Vapor pressure	No data available	None known
Relative density	1.0 - 1.1	(H ₂ O=1)
Bulk density	No data available	
Liquid Density	No data available	
Relative vapor density	No data available	None known
Particle characteristics		
Particle Size	No data available	
Particle Size Distribution	No data available	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosives	
Explosive properties	No information available
Oxidizing properties	No information available

9.2.2. Other safety characteristics

No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	None.
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10.2. Chemical stability

Stability	Stable under normal conditions.
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Explosion data

Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	None under normal processing.
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10.4. Conditions to avoid

Conditions to avoid	Keep away from heat. Keep away from water or moist air.
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10.5. Incompatible materials

Incompatible materials	Acids, Bases, Oxidizing agent, Reducing agent
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10.6. Hazardous decomposition products

Hazardous decomposition products Carbon monoxide, Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Oxides of sulfur

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information

Inhalation	No information available
Eye contact	No information available
Skin contact	No information available.
Ingestion	Acute LD ₅₀ > 2000 mg/kg (OECD 420 method)

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD ₅₀	Dermal LD ₅₀	Inhalation LC ₅₀
Water	> 90 mL/kg (Rat)	-	-
Glycerol	= 27200 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 5.85 mg/L (Rat) 4 h
Diethylene glycol	= 12565 mg/kg (Rat)	= 11890 mg/kg (Rabbit)	> 4600 mg/m ³ (Rat) 4 h
Triethylene glycol, monobutyl ether	= 5300 mg/kg (Rat)	= 3540 mg/kg (Rabbit)	-
Triethanolamine	= 4190 mg/kg (Rat)	> 20000 mg/kg (Rabbit)	-
1,2-benzisothiazol-3(2H)-one	= 450 mg/kg (Rat)	> 2000 mg/kg (Rat)	0.21 mg/L

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Non-irritant (OECD 404 method)

Serious eye damage/eye irritation Minimal irritant to the eye (OECD 405 method)

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Respiratory or skin sensitization	Respiratory sensitization : No information available It is not a skin sensitizer (OECD 429 method)
Germ cell mutagenicity	AMES test : Negative (OECD 471 method)
Carcinogenicity	Ingredients of this product have not been classified as carcinogens according to IARC monographs, NTP and OSHA
Reproductive toxicity	No information available
STOT - single exposure	No information available
STOT - repeated exposure	No information available
Aspiration hazard	No information available

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Glycerol	-	LC50: 51 - 57mL/L (96h, Oncorhynchus mykiss)	-	-
Diethylene glycol	-	LC50: =75200mg/L (96h, Pimephales promelas)	EC50 = 29228 mg/L 15 min	EC50: =84000mg/L (48h, Daphnia magna)
Triethylene glycol, monobutyl ether	EC50: >500mg/L (72h, Desmodesmus subspicatus)	LC50: =2400mg/L (96h, Pimephales promelas)	-	EC50: >500mg/L (48h, Daphnia magna)
Triethanolamine	EC50: =216mg/L (72h,	LC50: 10600 -	-	-

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	Desmodesmus subspicatus EC50: =169mg/L (96h, Desmodesmus subspicatus)	13000mg/L (96h, Pimephales promelas) LC50: >1000mg/L (96h, Pimephales promelas) LC50: 450 - 1000mg/L (96h, Lepomis macrochirus)		
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12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
Glycerol	-1.76
Diethylene glycol	-1.98
Triethylene glycol, monobutyl ether	0.51
Triethanolamine	-2.53
1,2-benzisothiazol-3(2H)-one	0.99

12.4. Mobility in soil

Mobility in soil No information available.

Mobility No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment This product contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This product contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Chemical name	PBT and vPvB assessment
Glycerol	The substance is not PBT / vPvB
Diethylene glycol	The substance is not PBT / vPvB
Triethylene glycol, monobutyl ether	The substance is not PBT / vPvB
Triethanolamine	The substance is not PBT / vPvB
1,2-benzisothiazol-3(2H)-one	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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Waste from residues/unused products

Dispose of in accordance with federal, state and local regulations.

SECTION 14: Transport information

IATA

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

IMDG

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	Not applicable

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

SECTION 15: Regulatory information

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

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National Regulations

France

Occupational Illnesses (R-463-3, France)

Chemical name	French RG number
Diethylene glycol - 111-46-6	RG 84
Triethylene glycol, monobutyl ether - 143-22-6	RG 84
Triethanolamine - 102-71-6	RG 49
1,2-benzisothiazol-3(2H)-one - 2634-33-5	RG 65

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorizations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorization per REACH Annex XIV
Diethylene glycol - 111-46-6	Use restricted. See entry 75.	-
Triethylene glycol, monobutyl ether - 143-22-6	Use restricted. See entry 75.	-
1,2-benzisothiazol-3(2H)-one - 2634-33-5	Use restricted. See entry 75.	-

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Chemical name	Biocidal Products Regulation (EU) No 528/2012 (BPR)
1,2-benzisothiazol-3(2H)-one - 2634-33-5	Product-type 2: Disinfectants and algicides not intended for direct application to humans or animals Product-type 6: Preservatives for products during storage Product-type 9: Fiber, leather, rubber and polymerized materials preservatives Product-type 11: Preservatives for liquid-cooling and processing systems Product-type 12: Slimicides Product-type 13: Working or cutting fluid preservatives

International Inventories

TSCA

Complies

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DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report No chemical safety assessment has been carried out

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H330 - Fatal if inhaled
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
vPvB: Very Persistent and very Bioaccumulative (vPvB) Chemicals

Legend SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Ceiling Limit Value	*	Skin designation
+	Sensitizers		

Classification procedure

Product Name: LC501C, LC504C, LC511C, LC514C, LC521C, LC522C, LC531C, LC551C ink

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Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	On basis of test data
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	On basis of test data
Serious eye damage/eye irritation	On basis of test data
Respiratory sensitization	Calculation method
Skin sensitization	On basis of test data
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Chronic aquatic toxicity	Calculation method
Acute aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Issuing Date 09-Apr-2025

Revision date -

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

Disclaimer

Revision date: -

Issuing Date: 09-Apr-2025

Revision Number: 1

Product Name: LC501C, LC504C, LC511C, LC514C, LC521C, LC522C, LC531C,
LC551C ink

Safety data sheet number: BHC336

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 guidance 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.

End of Safety Data Sheet

Product Name: LC501BK, LC504BK, LC511BK, LC514BK, LC521BK, LC522BK,
LC531BK, LC551BK ink

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Safety data sheet number: BHK336

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

1.1. Product identifier

Safety data sheet number BHK336

Product Name LC501BK, LC504BK, LC511BK, LC514BK, LC521BK, LC522BK, LC531BK, LC551BK ink

Other means of identification

Pure substance/mixture Mixture

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

Recommended use These products are black ink in a cartridge for Brother Industries, Ltd. inkjet multifunction devices and fax receivers. The cartridge should be used as supplied by Brother and for use in the products stated. Information provided on this SDS is only consistent with the use specified by Brother.

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Manufacturer

Brother Industries, Ltd.
15-1 Naeshiro-cho, Mizuho-ku, Nagoya 467-8561, Japan
Telephone (for information): +81-52-824-2735

Supplier

(Europe)
Brother International (Nederland) B.V.
Zanderij 25, 1185 ZM Amstelveen, The Netherlands

Brother International Europe Ltd.
1 Tame Street, Audenshaw, Manchester M34 5JE, UK
Telephone (for information): +44-161-330-6531
For further information, please contact

E-mail address sds.info@brother.co.jp

1.4. Emergency telephone number

Emergency Telephone CHEMTREC +1-703-527-3887 (International)

For France only:
Antipoison Center telephone number: ORFILA +33-1-45-425-959

Product Name: LC501BK, LC504BK, LC511BK, LC514BK, LC521BK, LC522BK,
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

Hazard statements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

EUH208 - Contains 1,2-benzisothiazol-3(2H)-one May produce an allergic reaction.

Unknown acute toxicity

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.

0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

35.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).

35.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).

7.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Unknown aquatic toxicity

Contains 0 % of components with unknown hazards to the aquatic environment.

2.3. Other hazards

This product contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This product contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	CAS No.	EC No (EU Index No)	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)	REACH registration number
Water	7732-18-5	231-791-2	65-75	No data available	-	-	-	Not applicable
Glycerol	56-81-5	200-289-5	5-15	No data	-	-	-	Not

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				available				applicable
Diethylene glycol	111-46-6	203-872-2 (603-140-00-6)	5-9	Acute Tox. 4 (H302)	-	-	-	Not applicable
Carbon Black	1333-86-4	215-609-9	5-9	No data available	-	-	-	Not applicable
[2-(2-methoxymethyl)ethoxy)methylethoxy]propanol	25498-49-1	247-045-4	1-5	Eye Irrit. 2 (H319)	-	-	-	Not applicable
2,2'-(ethylenedioxy)diethanol	112-27-6	203-953-2	1-5	No data available	-	-	-	Not applicable
1,2,3-benzotriazole	95-14-7	202-394-1 (613-350-00-X)	<0.3	Aquatic Chronic 2 (H411)	-	-	-	Not applicable
1,2-benzisothiazol-3 (2H)-one	2634-33-5	220-120-9 (613-088-00-6)	<0.05	Acute Tox. 2 (H330) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1A (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	Skin Sens. 1A :: C>=0.036%	1	1	Not applicable

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

If LD₅₀/LC₅₀ data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Water 7732-18-5	89838.9	No data available	No data available	No data available	No data available
Glycerol 56-81-5	27200	10000	5.85	No data available	No data available
Diethylene glycol 111-46-6	12565	11890	4.6	No data available	No data available
Carbon Black 1333-86-4	10000	2000	0.0046	No data available	No data available
[2-(2-methoxymethylethoxy))methylethoxy]propanol	3200	15440	No data available	No data available	No data available

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Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
25498-49-1					
2,2'-(ethylenedioxy)diethanol 112-27-6	17000	22600	5.2	No data available	No data available
1,2,3-benzotriazole 95-14-7	560	10000	1.4325	No data available	No data available
1,2-benzisothiazol-3(2H)-one 2634-33-5	450	2000	0.21	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	If symptoms persist, call a physician.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention.
Eye contact	In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Skin contact:	Wash skin with soap and water. Get medical attention if irritation develops and persists.
Ingestion	Obtain immediate medical attention. Wash out mouth with water and give 100-200 ml of water to drink.
Self-protection of the first aider	No information available.

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

Symptoms	Inhalation : No specific effects and/or symptoms have been reported or known For large quantities: May cause irritation to the respiratory system. Increased difficulty in breathing. Sneezing. Coughing
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4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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SECTION 5: Firefighting measures

Product Name: LC501BK, LC504BK, LC511BK, LC514BK, LC521BK, LC522BK, LC531BK, LC551BK ink

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5.1. Extinguishing media

Suitable Extinguishing Media Dry chemical, CO₂, water spray or regular foam

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Thermal decomposition can lead to release of irritating and toxic gases and vapors
Carbon monoxide Carbon dioxide (CO₂) Nitrogen oxides (NO_x) Oxides of sulfur

5.3. Advice for firefighters

Special protective equipment for fire-fighters Wear self contained breathing apparatus for fire fighting if necessary.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with eyes, skin and clothing

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas

6.3. Methods and material for containment and cleaning up

Methods for containment Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Wipe up with absorbent towel Wash with water to remove remaining traces of ink.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

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Advice on safe handling Avoid contact with eyes, skin and clothing.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep out of the reach of children. Keep cool. Protect from sunlight.

7.3. Specific end use(s)

Specific use(s) These products are black ink in a cartridge for Brother Industries, Ltd. inkjet multifunction devices and fax receivers. The cartridge should be used as supplied by Brother and for use in the products stated.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Glycerol 56-81-5	-	-	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³
Diethylene glycol 111-46-6	-	TWA: 10 ppm TWA: 44 mg/m ³ STEL 40 ppm STEL 176 mg/m ³	-	TWA: 10 mg/m ³	TWA: 23 ppm TWA: 101 mg/m ³
Carbon Black 1333-86-4	-	-	TWA: 3 mg/m ³	-	TWA: 3.5 mg/m ³ STEL: 7 mg/m ³
2,2'-(ethylenedioxy)diethanol 112-27-6	-	-	-	TWA: 15.0 mg/m ³	-
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Glycerol 56-81-5	-	TWA: 10 mg/m ³ Ceiling: 15 mg/m ³	-	TWA: 10 mg/m ³	TWA: 20 mg/m ³
Diethylene glycol 111-46-6	-	-	TWA: 2.5 ppm TWA: 11 mg/m ³ STEL: 5 ppm STEL: 22 mg/m ³	TWA: 10 ppm TWA: 45 mg/m ³ STEL: 20 ppm STEL: 90 mg/m ³ A*	-
Carbon Black 1333-86-4	-	TWA: 2.0 mg/m ³	TWA: 3.5 mg/m ³ STEL: 7 mg/m ³	TWA: 3 mg/m ³	TWA: 3.5 mg/m ³ STEL: 7 mg/m ³
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Glycerol	TWA: 10 mg/m ³	TWA: 200 mg/m ³	TWA: 200 mg/m ³	TWA: 10 mg/m ³	-

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56-81-5			Peak: 400 mg/m ³		
Diethylene glycol 111-46-6	-	TWA: 10 ppm TWA: 44 mg/m ³	TWA: 10 ppm TWA: 44 mg/m ³ Peak: 40 ppm Peak: 176 mg/m ³	-	-
Carbon Black 1333-86-4	TWA: 3.5 mg/m ³	-	-	TWA: 3.5 mg/m ³ STEL: 7 mg/m ³	TWA: 3 mg/m ³
2,2'-(ethylenedioxy)dietha nol 112-27-6	-	TWA: 1000 mg/m ³	TWA: 1000 mg/m ³ Peak: 2000 mg/m ³	-	-
1,2,3-benzotriazole 95-14-7	-	-	*	-	-
1,2-benzisothiazol-3(2H)- one 2634-33-5	-	-	skin sensitizer	-	-
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Diethylene glycol 111-46-6	TWA: 23 ppm TWA: 100 mg/m ³ STEL: 69 ppm STEL: 300 mg/m ³	-	-	TWA: 10 mg/m ³	O* TWA: 10 ppm TWA: 45 mg/m ³ STEL: 20 ppm STEL: 90 mg/m ³
Carbon Black 1333-86-4	TWA: 3 mg/m ³ STEL: 15 mg/m ³	-	TWA: 3 mg/m ³	-	-
1,2,3-benzotriazole 95-14-7	-	-	-	TWA: 5 mg/m ³	-
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Glycerol 56-81-5	-	-	-	-	TWA: 10 mg/m ³
Diethylene glycol 111-46-6	-	-	-	-	TWA: 10 mg/m ³
Carbon Black 1333-86-4	-	-	-	TWA: 3.5 mg/m ³ STEL: 7 mg/m ³	TWA: 4 mg/m ³
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Glycerol 56-81-5	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³	TWA: 200 mg/m ³ STEL: 400 mg/m ³	TWA: 10 mg/m ³
Diethylene glycol 111-46-6	-	TWA: 115 ppm TWA: 500 mg/m ³ STEL: 184 ppm STEL: 800 mg/m ³	TWA: 10 ppm TWA: 44 mg/m ³ Ceiling: 90 mg/m ³	TWA: 10 ppm TWA: 44 mg/m ³ STEL: 40 ppm STEL: 176 mg/m ³	-
Carbon Black 1333-86-4	TWA: 3 mg/m ³	-	TWA: 2 mg/m ³ TWA: 10 mg/m ³ Ceiling: 10 mg/m ³	-	TWA: 3.5 mg/m ³
2,2'-(ethylenedioxy)dietha nol 112-27-6	-	TWA: 114 ppm TWA: 700 mg/m ³ STEL: 163 ppm STEL: 1000 mg/m ³	-	TWA: 1000 mg/m ³ STEL: 2000 mg/m ³	-
Chemical name	Sweden		Switzerland		United Kingdom
Glycerol 56-81-5	-		TWA: 50 mg/m ³ STEL: 100 mg/m ³		TWA: 10 mg/m ³ STEL: 30 mg/m ³
Diethylene glycol 111-46-6	NGV: 10 ppm NGV: 45 mg/m ³		TWA: 10 ppm TWA: 44 mg/m ³		TWA: 23 ppm TWA: 101 mg/m ³

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	Vägledande KGV: 20 ppm Vägledande KGV: 90 mg/m ³ H*	STEL: 40 ppm STEL: 176 mg/m ³	STEL: 69 ppm STEL: 303 mg/m ³
Carbon Black 1333-86-4	NGV: 3 mg/m ³	-	TWA: 3.5 mg/m ³ STEL: 7 mg/m ³
2,2'-(ethylenedioxy)diethanol 112-27-6	-	TWA: 1000 mg/m ³ STEL: 2000 mg/m ³	-

Biological occupational exposure limits

Chemical name	European Union	Austria	Bulgaria	Croatia	Czech Republic
Carbon Black 1333-86-4	-	(-)	-	-	-

Derived No Effect Level (DNEL) - Workers No information available

Derived No Effect Level (DNEL) - General Public No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Appropriate engineering controls	Good general ventilation should be sufficient under normal use.
Personal protective equipment	Not normally required. For use other than in normal operating procedures (such as in the event of large spill), the following should be applied:
Eye/face protection	Safety goggles
Hand protection	Protective gloves
Skin and body protection	Apron, Rubber boots
Respiratory protection	In case of large spillages: Wear suitable respiratory protective equipment.
Thermal hazards	No information available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Avoid release to the environment.

SECTION 9: Physical and chemical properties

Product Name: LC501BK, LC504BK, LC511BK, LC514BK, LC521BK, LC522BK, LC531BK, LC551BK ink

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9.1. Information on basic physical and chemical properties

Physical state	Liquid
Color	black
Odor	Slight
Odor threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	< -5 °C	
Initial boiling point and boiling range	> 100 °C	
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	> 93.3 °C	Tag Closed Cup, Cleveland Open Cup
Autoignition temperature	> 400 °C	
Decomposition temperature	No data available	None known
pH	7 - 9	
pH (as aqueous solution)	No information available	
Kinematic viscosity	No data available	None known
Dynamic viscosity	1 - 5 mPa·s	
Water solubility	Soluble in water	
Solubility(ies)	No information available	None known
Partition coefficient	No data available	None known
Vapor pressure	No data available	None known
Relative density	1.0 - 1.1	(H ₂ O=1)
Bulk density	No data available	
Liquid Density	No data available	
Relative vapor density	No data available	None known
Particle characteristics		
Particle Size	No data available	
Particle Size Distribution	No data available	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosives	
Explosive properties	No information available
Oxidizing properties	No information available

9.2.2. Other safety characteristics

No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	None.
------------	-------

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LC531BK, LC551BK ink

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10.2. Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid Keep away from heat. Keep away from water or moist air.

10.5. Incompatible materials

Incompatible materials Acids, Bases, Oxidizing agent, Reducing agent

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon monoxide, Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Oxides of sulfur

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information

Inhalation No information available

Eye contact No information available

Skin contact No information available.

Ingestion Acute LD₅₀ > 2000 mg/kg (OECD 420 method)

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

Product Name: LC501BK, LC504BK, LC511BK, LC514BK, LC521BK, LC522BK, LC531BK, LC551BK ink

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Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)	-	-
Glycerol	= 27200 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 5.85 mg/L (Rat) 4 h
Diethylene glycol	= 12565 mg/kg (Rat)	= 11890 mg/kg (Rabbit)	> 4600 mg/m ³ (Rat) 4 h
Carbon Black	> 10000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 4.6 mg/m ³ (Rat) 4 h
Dipropylene glycol propyl ether	= 1620 µL/kg (Rat)	>= 2000 mg/kg (Rabbit)	-
[2-(2-methoxymethylethoxy)methylethoxy]propanol	= 3200 mg/kg (Rat)	= 15440 mg/kg (Rabbit)	-
2,2'-(ethylenedioxy)diethanol	= 17 g/kg (Rat)	> 20 mL/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
1,2,3-benzotriazole	= 560 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	= 1910 mg/m ³ (Rat) 3 h
1,2-benzisothiazol-3(2H)-one	= 450 mg/kg (Rat)	> 2000 mg/kg (Rat)	0.21 mg/L

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation

Non-irritant (OECD 404 method)

Serious eye damage/eye irritation

Minimal irritant to the eye (OECD 405 method)

Respiratory or skin sensitization

Respiratory sensitization : No information available
It is not a skin sensitizer (OECD 429 method)

Germ cell mutagenicity

AMES test : Negative (OECD 471 method)

Carcinogenicity

Carbon Black: In 1996, the IARC re-evaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals, for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors

Other ingredients of this product have not been classified as carcinogens according to IARC monographs, NTP and OSHA

Reproductive toxicity

No information available

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STOT - single exposure No information available

STOT - repeated exposure No information available

Aspiration hazard No information available

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Glycerol	-	LC50: 51 - 57mL/L (96h, <i>Oncorhynchus mykiss</i>)	-	-
Diethylene glycol	-	LC50: =75200mg/L (96h, <i>Pimephales promelas</i>)	EC50 = 29228 mg/L 15 min	EC50: =84000mg/L (48h, <i>Daphnia magna</i>)
Carbon Black	-	-	-	-
[2-(2-methoxymethylethoxy)methylethoxy]propanol	-	LC50: =11619mg/L (96h, <i>Pimephales promelas</i>)	-	EC50: >10,000mg/L (48h, <i>Daphnia magna</i>)
2,2'-(ethylenedioxy)diethanol	-	LC50: 56200 - 63700mg/L (96h, <i>Pimephales promelas</i>) LC50: =10000mg/L (96h, <i>Lepomis macrochirus</i>) LC50: =61000mg/L (96h, <i>Lepomis macrochirus</i>)	-	EC50: =42426mg/L (48h, <i>Daphnia magna</i>)
1,2,3-benzotriazole	EC50: =15.4mg/L (96h, freshwater algae)	LC50: =39mg/L (96h, <i>Oncorhynchus mykiss</i>)	-	EC50: =141.6mg/L (48h, water flea)

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
Glycerol	-1.76

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Diethylene glycol	-1.98
2,2'-(ethylenedioxy)diethanol	-1.98
1,2-benzisothiazol-3(2H)-one	0.99

12.4. Mobility in soil

Mobility in soil No information available.
Mobility No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment This product contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).
This product contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Chemical name	PBT and vPvB assessment
Glycerol	The substance is not PBT / vPvB
Diethylene glycol	The substance is not PBT / vPvB
Carbon Black	The substance is not PBT / vPvB
[2-(2-methoxymethylethoxy)methylethoxy]propanol	The substance is not PBT / vPvB
2,2'-(ethylenedioxy)diethanol	The substance is not PBT / vPvB
1,2,3-benzotriazole	The substance is not PBT / vPvB
1,2-benzisothiazol-3(2H)-one	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with federal, state and local regulations.

SECTION 14: Transport information

IATA

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable

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14.6 Special precautions for user

Special Provisions None

IMDG

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None
14.7 Maritime transport in bulk according to IMO instruments Not applicable

RID

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None

ADR

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None

SECTION 15: Regulatory information

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

National Regulations

France

Occupational Illnesses (R-463-3, France)

Chemical name	French RG number
Diethylene glycol - 111-46-6	RG 84
Carbon Black - 1333-86-4	RG 16, RG 16bis
[2-(2-methoxymethylethoxy)methylethoxy]propanol - 25498-49-1	RG 84
2,2'-(ethylenedioxy)diethanol - 112-27-6	RG 84
1,2-benzisothiazol-3(2H)-one - 2634-33-5	RG 65

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European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorizations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorization per REACH Annex XIV
Diethylene glycol - 111-46-6	Use restricted. See entry 75.	-
Carbon Black - 1333-86-4	Use restricted. See entry 75.	-
1,2-benzisothiazol-3(2H)-one - 2634-33-5	Use restricted. See entry 75.	-

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

EU - Plant Protection Products (1107/2009/EC)

Chemical name	EU - Plant Protection Products (1107/2009/EC)
Carbon Black - 1333-86-4	Plant protection agent

Chemical name	Biocidal Products Regulation (EU) No 528/2012 (BPR)
1,2-benzisothiazol-3(2H)-one - 2634-33-5	Product-type 2: Disinfectants and algacides not intended for direct application to humans or animals Product-type 6: Preservatives for products during storage Product-type 9: Fiber, leather, rubber and polymerized materials preservatives Product-type 11: Preservatives for liquid-cooling and processing systems Product-type 12: Slimicides Product-type 13: Working or cutting fluid preservatives

International Inventories

TSCA	Complies
DSL/NDL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:

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TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report No chemical safety assessment has been carried out

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H319 - Causes serious eye irritation
H330 - Fatal if inhaled
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
vPvB: Very Persistent and very Bioaccumulative (vPvB) Chemicals

Legend SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)
Ceiling Ceiling Limit Value * Skin designation
+ Sensitizers

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	On basis of test data
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	On basis of test data
Serious eye damage/eye irritation	On basis of test data
Respiratory sensitization	Calculation method

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Skin sensitization	On basis of test data
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Chronic aquatic toxicity	Calculation method
Acute aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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Disclaimer

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 guidance 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.

End of Safety Data Sheet

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

1.1. Product identifier

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Product Name LC501M, LC504M, LC511M, LC514M, LC521M, LC522M, LC531M, LC551M ink

Other means of identification

Pure substance/mixture Mixture

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

Recommended use These products are dark red ink in a cartridge for Brother Industries, Ltd. inkjet multifunction devices and fax receivers. The cartridge should be used as supplied by Brother and for use in the products stated. Information provided on this SDS is only consistent with the use specified by Brother.

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Manufacturer

Brother Industries, Ltd.
15-1 Naeshiro-cho, Mizuho-ku, Nagoya 467-8561, Japan
Telephone (for information): +81-52-824-2735

Supplier

(Europe)
Brother International (Nederland) B.V.
Zanderij 25, 1185 ZM Amstelveen, The Netherlands

Brother International Europe Ltd.
1 Tame Street, Audenshaw, Manchester M34 5JE, UK
Telephone (for information): +44-161-330-6531
For further information, please contact

E-mail address sds.info@brother.co.jp

1.4. Emergency telephone number

Emergency Telephone CHEMTREC +1-703-527-3887 (International)

For France only:
Antipoison Center telephone number: ORFILA +33-1-45-425-959

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

Hazard statements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

EUH208 - Contains 1,2-benzisothiazol-3(2H)-one May produce an allergic reaction.

Unknown acute toxicity

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.

0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

29.8 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).

29.8 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).

14.8 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Unknown aquatic toxicity

Contains 0 % of components with unknown hazards to the aquatic environment.

2.3. Other hazards

This product contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This product contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	CAS No.	EC No (EU Index No)	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)	REACH registration number
Water	7732-18-5	231-791-2	65-75	No data available	-	-	-	Not applicable
Glycerol	56-81-5	200-289-5	10-20	No data	-	-	-	Not

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				available				applicable
Polyethylene glycol	25322-68-3	500-038-2	5-15	No data available	-	-	-	Not applicable
Triethylene glycol, monobutyl ether	143-22-6	205-592-6 (603-183-00-0)	1-5	Eye Dam. 1 (H318)	Eye Dam. 1 :: C>=30% Eye Irrit. 2 :: 20%<=C<30%	-	-	01-21194751 07-38-XXXX
Triethanolamine	102-71-6	203-049-8	<1	No data available	-	-	-	Not applicable
1,2-benzisothiazol-3(2H)-one	2634-33-5	220-120-9 (613-088-00-6)	<0.05	Acute Tox. 2 (H330) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1A (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	Skin Sens. 1A :: C>=0.036%	1	1	Not applicable

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

If LD₅₀/LC₅₀ data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Water 7732-18-5	89838.9	No data available	No data available	No data available	No data available
Glycerol 56-81-5	27200	10000	5.85	No data available	No data available
Polyethylene glycol 25322-68-3	22000	20000	No data available	No data available	No data available
Triethylene glycol, monobutyl ether 143-22-6	5300	3540	No data available	No data available	No data available
Triethanolamine 102-71-6	4190	20000	No data available	No data available	No data available
1,2-benzisothiazol-3(2H)-one 2634-33-5	450	2000	0.21	No data available	No data available

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This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	If symptoms persist, call a physician.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention.
Eye contact	In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Skin contact:	Wash skin with soap and water. Get medical attention if irritation develops and persists.
Ingestion	Obtain immediate medical attention. Wash out mouth with water and give 100-200 ml of water to drink.
Self-protection of the first aider	No information available.

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

Symptoms	Inhalation : No specific effects and/or symptoms have been reported or known For large quantities: May cause irritation to the respiratory system. Increased difficulty in breathing. Sneezing. Coughing
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4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical, CO ₂ , water spray or regular foam
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5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	Thermal decomposition can lead to release of irritating and toxic gases and vapors Carbon monoxide Carbon dioxide (CO ₂) Nitrogen oxides (NOx) Oxides of sulfur
---	--

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5.3. Advice for firefighters

Special protective equipment for fire-fighters Wear self contained breathing apparatus for fire fighting if necessary.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with eyes, skin and clothing

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas

6.3. Methods and material for containment and cleaning up

Methods for containment Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Wipe up with absorbent towel Wash with water to remove remaining traces of ink.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Avoid contact with eyes, skin and clothing.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions Keep out of the reach of children. Keep cool. Protect from sunlight.

7.3. Specific end use(s)

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Specific use(s)

These products are dark red ink in a cartridge for Brother Industries, Ltd. inkjet multifunction devices and fax receivers. The cartridge should be used as supplied by Brother and for use in the products stated.

Risk Management Methods (RMM)

The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Glycerol 56-81-5	-	-	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³
Polyethylene glycol 25322-68-3	-	TWA: 1000 mg/m ³ STEL 4000 mg/m ³	-	-	-
Triethanolamine 102-71-6	-	TWA: 0.8 ppm TWA: 5 mg/m ³ STEL 1.6 ppm STEL 10 mg/m ³ S+	TWA: 5 mg/m ³	-	-
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Glycerol 56-81-5	-	TWA: 10 mg/m ³ Ceiling: 15 mg/m ³	-	TWA: 10 mg/m ³	TWA: 20 mg/m ³
Polyethylene glycol 25322-68-3	-	-	TWA: 1000 mg/m ³ STEL: 2000 mg/m ³ average molecular weight of 200-600	-	-
Triethanolamine 102-71-6	-	TWA: 5 mg/m ³ Ceiling: 10 mg/m ³ D*	TWA: 0.5 ppm TWA: 3.1 mg/m ³ STEL: 1 ppm STEL: 6.2 mg/m ³	S+ TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 5 mg/m ³
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Glycerol 56-81-5	TWA: 10 mg/m ³	TWA: 200 mg/m ³	TWA: 200 mg/m ³ Peak: 400 mg/m ³	TWA: 10 mg/m ³	-
Polyethylene glycol 25322-68-3	-	TWA: 200 mg/m ³	TWA: 250 mg/m ³ Peak: 500 mg/m ³	-	-
Triethanolamine 102-71-6	-	TWA: 1 mg/m ³	TWA: 1 mg/m ³ Peak: 1 mg/m ³	-	-
1,2-benzisothiazol-3(2H)-one 2634-33-5	-	-	skin sensitizer	-	-
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Triethanolamine 102-71-6	TWA: 5 mg/m ³ STEL: 15 mg/m ³	-	TWA: 5 mg/m ³	-	J+ TWA: 5 mg/m ³ STEL: 10 mg/m ³

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Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Glycerol 56-81-5	-	-	-	-	TWA: 10 mg/m ³
Triethanolamine 102-71-6	-	-	-	TWA: 5 mg/m ³ STEL: 10 mg/m ³	-
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Glycerol 56-81-5	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³	TWA: 200 mg/m ³ STEL: 400 mg/m ³	TWA: 10 mg/m ³
Polyethylene glycol 25322-68-3	-	-	TWA: 1000 mg/m ³	TWA: 1000 mg/m ³ STEL: 8000 mg/m ³	-
Triethanolamine 102-71-6	TWA: 5 mg/m ³	-	-	-	TWA: 5 mg/m ³
Chemical name	Sweden		Switzerland		United Kingdom
Glycerol 56-81-5	-		TWA: 50 mg/m ³ STEL: 100 mg/m ³		TWA: 10 mg/m ³ STEL: 30 mg/m ³
Polyethylene glycol 25322-68-3	-		TWA: 500 mg/m ³		-
Triethanolamine 102-71-6	NGV: 5 mg/m ³ NGV: 0.8 ppm Vägledande KGV: 10 mg/m ³ Vägledande KGV: 1.6 ppm H*		TWA: 5 mg/m ³ STEL: 5 mg/m ³		-

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers No information available

Derived No Effect Level (DNEL) - General Public No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation should be sufficient under normal use.

Personal protective equipment Not normally required. For use other than in normal operating procedures (such as in the event of large spill), the following should be applied:

Eye/face protection Safety goggles

Hand protection Protective gloves

Skin and body protection Apron, Rubber boots

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Respiratory protection	In case of large spillages: Wear suitable respiratory protective equipment.
Thermal hazards	No information available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid	
Color	dark red	
Odor	Slight	
Odor threshold	No information available	
Property	Values	Remarks • Method
Melting point / freezing point	< -5 °C	
Initial boiling point and boiling range	> 100 °C	
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	> 93.3 °C	Tag Closed Cup Cleveland Open Cup
Autoignition temperature	> 400 °C	
Decomposition temperature	No data available	None known
pH	7 - 9	
pH (as aqueous solution)	No information available	None known
Kinematic viscosity		None known
Dynamic viscosity	1 - 5 mPa·s	
Water solubility	Soluble in water	
Solubility(ies)	No information available	None known
Partition coefficient	No data available	None known
Vapor pressure	No data available	None known
Relative density	1.0 - 1.1	(H ₂ O=1)
Bulk density	No data available	
Liquid Density	No data available	
Relative vapor density	No data available	None known
Particle characteristics		
Particle Size	No data available	
Particle Size Distribution	No data available	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

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Explosives

Explosive properties

No information available

Oxidizing properties

No information available

9.2.2. Other safety characteristics

No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity

None.

10.2. Chemical stability

Stability

Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

10.4. Conditions to avoid

Conditions to avoid

Keep away from heat. Keep away from water or moist air.

10.5. Incompatible materials

Incompatible materials

Acids, Bases, Oxidizing agent, Reducing agent

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon monoxide, Carbon dioxide (CO₂), Nitrogen oxides (NO_x), Oxides of sulfur

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information

Inhalation

No information available

Eye contact

No information available

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Skin contact No information available.

Ingestion Acute LD₅₀ > 2000 mg/kg (OECD 423 method)

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)	-	-
Glycerol	= 27200 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 5.85 mg/L (Rat) 4 h
Polyethylene glycol	= 22 g/kg (Rat)	> 20 g/kg (Rabbit)	-
Triethylene glycol, monobutyl ether	= 5300 mg/kg (Rat)	= 3540 mg/kg (Rabbit)	-
Triethanolamine	= 4190 mg/kg (Rat)	> 20000 mg/kg (Rabbit)	-
1,2-benzisothiazol-3(2H)-one	= 450 mg/kg (Rat)	> 2000 mg/kg (Rat)	0.21 mg/L

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Non-irritant (OECD 404 method)

Serious eye damage/eye irritation Minimal irritant to the eye (OECD 405 method)

Respiratory or skin sensitization Respiratory sensitization : No information available
It is not a skin sensitizer (OECD 442B method)

Germ cell mutagenicity AMES test : Negative (OECD 471 method)

Carcinogenicity Ingredients of this product have not been classified as carcinogens according to IARC monographs, NTP and OSHA

Reproductive toxicity No information available

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STOT - single exposure No information available

STOT - repeated exposure No information available

Aspiration hazard No information available

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Glycerol	-	LC50: 51 - 57mL/L (96h, <i>Oncorhynchus mykiss</i>)	-	-
Triethylene glycol, monobutyl ether	EC50: >500mg/L (72h, <i>Desmodesmus subspicatus</i>)	LC50: =2400mg/L (96h, <i>Pimephales promelas</i>)	-	EC50: >500mg/L (48h, <i>Daphnia magna</i>)
Triethanolamine	EC50: =216mg/L (72h, <i>Desmodesmus subspicatus</i>) EC50: =169mg/L (96h, <i>Desmodesmus subspicatus</i>)	LC50: 10600 - 13000mg/L (96h, <i>Pimephales promelas</i>) LC50: >1000mg/L (96h, <i>Pimephales promelas</i>) LC50: 450 - 1000mg/L (96h, <i>Lepomis macrochirus</i>)	-	-

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
Glycerol	-1.76
Triethylene glycol, monobutyl ether	0.51
Triethanolamine	-2.53
1,2-benzisothiazol-3(2H)-one	0.99

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12.4. Mobility in soil

Mobility in soil

No information available.

Mobility

No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment

This product contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This product contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Chemical name	PBT and vPvB assessment
Glycerol	The substance is not PBT / vPvB
Polyethylene glycol	The substance is not PBT / vPvB
Triethylene glycol, monobutyl ether	The substance is not PBT / vPvB
Triethanolamine	The substance is not PBT / vPvB
1,2-benzisothiazol-3(2H)-one	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties

No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products

Dispose of in accordance with federal, state and local regulations.

SECTION 14: Transport information

IATA

- | | |
|-----------------------------------|----------------|
| 14.1 UN number or ID number | Not regulated |
| 14.2 UN proper shipping name | Not regulated |
| 14.3 Transport hazard class(es) | Not regulated |
| 14.4 Packing group | Not regulated |
| 14.5 Environmental hazards | Not applicable |
| 14.6 Special precautions for user | |
| Special Provisions | None |

IMDG

- | | |
|---------------------------------|---------------|
| 14.1 UN number or ID number | Not regulated |
| 14.2 UN proper shipping name | Not regulated |
| 14.3 Transport hazard class(es) | Not regulated |

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14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None
14.7 Maritime transport in bulk according to IMO instruments Not applicable

RID

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None

ADR

14.1 UN number or ID number Not regulated
14.2 UN proper shipping name Not regulated
14.3 Transport hazard class(es) Not regulated
14.4 Packing group Not regulated
14.5 Environmental hazards Not applicable
14.6 Special precautions for user
Special Provisions None

SECTION 15: Regulatory information

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

National Regulations

France

Occupational Illnesses (R-463-3, France)

Chemical name	French RG number
Triethylene glycol, monobutyl ether - 143-22-6	RG 84
Triethanolamine - 102-71-6	RG 49
1,2-benzisothiazol-3(2H)-one - 2634-33-5	RG 65

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorizations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH	Substance subject to authorization per
---------------	--------------------------------	--

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	Annex XVII	REACH Annex XIV
Triethylene glycol, monobutyl ether - 143-22-6	Use restricted. See entry 75.	-
1,2-benzisothiazol-3(2H)-one - 2634-33-5	Use restricted. See entry 75.	-

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Chemical name	Biocidal Products Regulation (EU) No 528/2012 (BPR)
1,2-benzisothiazol-3(2H)-one - 2634-33-5	Product-type 2: Disinfectants and algaecides not intended for direct application to humans or animals Product-type 6: Preservatives for products during storage Product-type 9: Fiber, leather, rubber and polymerized materials preservatives Product-type 11: Preservatives for liquid-cooling and processing systems Product-type 12: Slimicides Product-type 13: Working or cutting fluid preservatives

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:

TSCA	- United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL	- Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS	- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS	- Japan Existing and New Chemical Substances
IECSC	- China Inventory of Existing Chemical Substances
KECL	- Korean Existing and Evaluated Chemical Substances
PICCS	- Philippines Inventory of Chemicals and Chemical Substances
AICS	- Australian Inventory of Chemical Substances
NZIoC	- New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report

No chemical safety assessment has been carried out

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SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H330 - Fatal if inhaled
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
vPvB: Very Persistent and very Bioaccumulative (vPvB) Chemicals

Legend SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Ceiling Limit Value	*	Skin designation
+	Sensitizers	** Trade secret	

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	On basis of test data
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	On basis of test data
Serious eye damage/eye irritation	On basis of test data
Respiratory sensitization	Calculation method
Skin sensitization	On basis of test data
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Chronic aquatic toxicity	Calculation method
Acute aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)

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U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

Disclaimer

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 guidance 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.

End of Safety Data Sheet

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

1.1. Product identifier

Safety data sheet number BHY336

Product Name LC501Y, LC504Y, LC511Y, LC514Y, LC521Y, LC522Y, LC531Y, LC551Y ink

Other means of identification

Pure substance/mixture Mixture

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

Recommended use These products are dark yellow ink in a cartridge for Brother Industries, Ltd. inkjet multifunction devices and fax receivers. The cartridge should be used as supplied by Brother and for use in the products stated. Information provided on this SDS is only consistent with the use specified by Brother.

Uses advised against No information available

1.3. Details of the supplier of the safety data sheet

Manufacturer

Brother Industries, Ltd.
15-1 Naeshiro-cho, Mizuho-ku, Nagoya 467-8561, Japan
Telephone (for information): +81-52-824-2735

Supplier

(Europe)
Brother International (Nederland) B.V.
Zanderij 25, 1185 ZM Amstelveen, The Netherlands

Brother International Europe Ltd.
1 Tame Street, Audenshaw, Manchester M34 5JE, UK
Telephone (for information): +44-161-330-6531
For further information, please contact

E-mail address sds.info@brother.co.jp

1.4. Emergency telephone number

Emergency Telephone CHEMTREC +1-703-527-3887 (International)

For France only:
Antipoison Center telephone number: ORFILA +33-1-45-425-959

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

2.2. Label elements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

Hazard statements

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

EUH208 - Contains 1,2-benzisothiazol-3(2H)-one May produce an allergic reaction.

Unknown acute toxicity

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.

0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

29.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).

29.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).

19.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Unknown aquatic toxicity

Contains 0 % of components with unknown hazards to the aquatic environment.

2.3. Other hazards

This product contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This product contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical name	CAS No.	EC No (EU Index No)	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)	REACH registration number
Water	7732-18-5	231-791-2	65-75	No data available	-	-	-	Not applicable
Polyethylene glycol	25322-68-3	500-038-2	10-20	No data	-	-	-	Not

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				available				applicable
Glycerol	56-81-5	200-289-5	5-15	No data available	-	-	-	Not applicable
Triethylene glycol, monobutyl ether	143-22-6	205-592-6 (603-183-00-0)	1-5	Eye Dam. 1 (H318)	Eye Dam. 1 :: C>=30% Eye Irrit. 2 :: 20%<=C<30%	-	-	01-21194751 07-38-XXXX
Triethanolamine	102-71-6	203-049-8	<1	No data available	-	-	-	Not applicable
1,2,3-benzotriazole	95-14-7	202-394-1 (613-350-00-X)	<0.3	Aquatic Chronic 2 (H411)	-	-	-	Not applicable
1,2-benzisothiazol-3(2H)-one	2634-33-5	220-120-9 (613-088-00-6)	<0.05	Acute Tox. 2 (H330) Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1A (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	Skin Sens. 1A :: C>=0.036%	1	1	Not applicable

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

If LD₅₀/LC₅₀ data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Water 7732-18-5	89838.9	No data available	No data available	No data available	No data available
Polyethylene glycol 25322-68-3	22000	20000	No data available	No data available	No data available
Glycerol 56-81-5	27200	10000	5.85	No data available	No data available
Triethylene glycol, monobutyl ether 143-22-6	5300	3540	No data available	No data available	No data available
Triethanolamine 102-71-6	4190	20000	No data available	No data available	No data available

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Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
1,2,3-benzotriazole 95-14-7	560	10000	1.4325	No data available	No data available
1,2-benzisothiazol-3(2H)-one 2634-33-5	450	2000	0.21	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration $\geq 0.1\%$ (Regulation (EC) No. 1907/2006 (REACH), Article 59)

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	If symptoms persist, call a physician.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention.
Eye contact	In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Skin contact:	Wash skin with soap and water. Get medical attention if irritation develops and persists.
Ingestion	Obtain immediate medical attention. Wash out mouth with water and give 100-200 ml of water to drink.
Self-protection of the first aider	No information available.

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

Symptoms	Inhalation : No specific effects and/or symptoms have been reported or known For large quantities: May cause irritation to the respiratory system. Increased difficulty in breathing. Sneezing. Coughing
-----------------	---

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

Note to physicians	Treat symptomatically.
---------------------------	------------------------

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical, CO ₂ , water spray or regular foam
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5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical Thermal decomposition can lead to release of irritating and toxic gases and vapors
Carbon monoxide Carbon dioxide (CO₂) Nitrogen oxides (NO_x) Oxides of sulfur

5.3. Advice for firefighters

Special protective equipment for fire-fighters Wear self contained breathing apparatus for fire fighting if necessary.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Avoid contact with eyes, skin and clothing

For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas

6.3. Methods and material for containment and cleaning up

Methods for containment Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Wipe up with absorbent towel Wash with water to remove remaining traces of ink.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Reference to other sections See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling Avoid contact with eyes, skin and clothing.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

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7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep out of the reach of children. Keep cool. Protect from sunlight.

7.3. Specific end use(s)

Specific use(s)

These products are dark yellow ink in a cartridge for Brother Industries, Ltd. inkjet multifunction devices and fax receivers. The cartridge should be used as supplied by Brother and for use in the products stated.

Risk Management Methods (RMM) The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
Polyethylene glycol 25322-68-3	-	TWA: 1000 mg/m ³ STEL 4000 mg/m ³	-	-	-
Glycerol 56-81-5	-	-	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³
Triethanolamine 102-71-6	-	TWA: 0.8 ppm TWA: 5 mg/m ³ STEL 1.6 ppm STEL 10 mg/m ³ S+	TWA: 5 mg/m ³	-	-
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
Polyethylene glycol 25322-68-3	-	-	TWA: 1000 mg/m ³ STEL: 2000 mg/m ³ average molecular weight of 200-600	-	-
Glycerol 56-81-5	-	TWA: 10 mg/m ³ Ceiling: 15 mg/m ³	-	TWA: 10 mg/m ³	TWA: 20 mg/m ³
Triethanolamine 102-71-6	-	TWA: 5 mg/m ³ Ceiling: 10 mg/m ³ D*	TWA: 0.5 ppm TWA: 3.1 mg/m ³ STEL: 1 ppm STEL: 6.2 mg/m ³	S+ TWA: 5 mg/m ³ STEL: 10 mg/m ³	TWA: 5 mg/m ³
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
Polyethylene glycol 25322-68-3	-	TWA: 200 mg/m ³	TWA: 250 mg/m ³ Peak: 500 mg/m ³	-	-
Glycerol 56-81-5	TWA: 10 mg/m ³	TWA: 200 mg/m ³	TWA: 200 mg/m ³ Peak: 400 mg/m ³	TWA: 10 mg/m ³	-
Triethanolamine 102-71-6	-	TWA: 1 mg/m ³	TWA: 1 mg/m ³ Peak: 1 mg/m ³	-	-

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1,2,3-benzotriazole 95-14-7	-	-	*	-	-
1,2-benzisothiazol-3(2H)- one 2634-33-5	-	-	skin sensitizer	-	-
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
Triethanolamine 102-71-6	TWA: 5 mg/m ³ STEL: 15 mg/m ³	-	TWA: 5 mg/m ³	-	J+ TWA: 5 mg/m ³ STEL: 10 mg/m ³
1,2,3-benzotriazole 95-14-7	-	-	-	TWA: 5 mg/m ³	-
Chemical name	Luxembourg	Malta	Netherlands	Norway	Poland
Glycerol 56-81-5	-	-	-	-	TWA: 10 mg/m ³
Triethanolamine 102-71-6	-	-	-	TWA: 5 mg/m ³ STEL: 10 mg/m ³	-
Chemical name	Portugal	Romania	Slovakia	Slovenia	Spain
Polyethylene glycol 25322-68-3	-	-	TWA: 1000 mg/m ³	TWA: 1000 mg/m ³ STEL: 8000 mg/m ³	-
Glycerol 56-81-5	TWA: 10 mg/m ³	-	TWA: 10 mg/m ³	TWA: 200 mg/m ³ STEL: 400 mg/m ³	TWA: 10 mg/m ³
Triethanolamine 102-71-6	TWA: 5 mg/m ³	-	-	-	TWA: 5 mg/m ³
Chemical name	Sweden		Switzerland		United Kingdom
Polyethylene glycol 25322-68-3	-		TWA: 500 mg/m ³		-
Glycerol 56-81-5	-		TWA: 50 mg/m ³ STEL: 100 mg/m ³		TWA: 10 mg/m ³ STEL: 30 mg/m ³
Triethanolamine 102-71-6	NGV: 5 mg/m ³ NGV: 0.8 ppm Vägledande KGV: 10 mg/m ³ Vägledande KGV: 1.6 ppm H*		TWA: 5 mg/m ³ STEL: 5 mg/m ³		-

Biological occupational exposure limits This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers No information available

Derived No Effect Level (DNEL) - General Public No information available.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation should be sufficient under normal use.

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Personal protective equipment	Not normally required. For use other than in normal operating procedures (such as in the event of large spill), the following should be applied:
Eye/face protection	Safety goggles
Hand protection	Protective gloves
Skin and body protection	Apron, Rubber boots
Respiratory protection	In case of large spillages: Wear suitable respiratory protective equipment.
Thermal hazards	No information available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.
Environmental exposure controls	Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid	
Color	dark yellow	
Odor	Slight	
Odor threshold	No information available	
Property	Values	Remarks • Method
Melting point / freezing point	< -5 °C	
Initial boiling point and boiling range	> 100 °C	
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Flash point	> 93.3 °C	Tag Closed Cup Cleveland Open Cup
Autoignition temperature	> 400 °C	
Decomposition temperature	No data available	None known
pH	7 - 9	
pH (as aqueous solution)	No information available	None known
Kinematic viscosity		None known
Dynamic viscosity	1 - 5 mPa·s	
Water solubility	Soluble in water	
Solubility(ies)	No information available	None known
Partition coefficient	No data available	None known
Vapor pressure	No data available	None known
Relative density	1.0 - 1.1	(H ₂ O=1)
Bulk density	No data available	

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Liquid Density	No data available	
Relative vapor density	No data available	None known
Particle characteristics		
Particle Size	No data available	
Particle Size Distribution	No data available	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosives	
Explosive properties	No information available
Oxidizing properties	No information available

9.2.2. Other safety characteristics

No information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	None.
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10.2. Chemical stability

Stability	Stable under normal conditions.
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Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	None under normal processing.
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10.4. Conditions to avoid

Conditions to avoid	Keep away from heat. Keep away from water or moist air.
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10.5. Incompatible materials

Incompatible materials	Acids, Bases, Oxidizing agent, Reducing agent
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10.6. Hazardous decomposition products

Hazardous decomposition products	Carbon monoxide, Carbon dioxide (CO ₂), Nitrogen oxides (NO _x), Oxides of sulfur
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SECTION 11: Toxicological information

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11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure

Product Information

Inhalation	No information available
Eye contact	No information available
Skin contact	No information available.
Ingestion	Acute LD ₅₀ > 2000 mg/kg (OECD 423 method)

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)	-	-
Polyethylene glycol	= 22 g/kg (Rat)	> 20 g/kg (Rabbit)	-
Glycerol	= 27200 mg/kg (Rat)	> 10 g/kg (Rabbit)	> 5.85 mg/L (Rat) 4 h
Triethylene glycol, monobutyl ether	= 5300 mg/kg (Rat)	= 3540 mg/kg (Rabbit)	-
Triethanolamine	= 4190 mg/kg (Rat)	> 20000 mg/kg (Rabbit)	-
1,2,3-benzotriazole	= 560 mg/kg (Rat)	> 10000 mg/kg (Rabbit)	= 1910 mg/m ³ (Rat) 3 h
1,2-benzisothiazol-3(2H)-one	= 450 mg/kg (Rat)	> 2000 mg/kg (Rat)	0.21 mg/L

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Non-irritant (OECD 404 method)

Serious eye damage/eye irritation Minimal irritant to the eye (OECD 405 method)

Respiratory or skin sensitization Respiratory sensitization : No information available
It is not a skin sensitizer (OECD 442B method)

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Germ cell mutagenicity AMES test : Negative (OECD 471 method)

Carcinogenicity Ingredients of this product have not been classified as carcinogens according to IARC monographs, NTP and OSHA

Reproductive toxicity No information available

STOT - single exposure No information available

STOT - repeated exposure No information available

Aspiration hazard No information available

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Endocrine disrupting properties No information available.

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity

The environmental impact of this product has not been fully investigated.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Glycerol	-	LC50: 51 - 57mL/L (96h, Oncorhynchus mykiss)	-	-
Triethylene glycol, monobutyl ether	EC50: >500mg/L (72h, Desmodesmus subspicatus)	LC50: =2400mg/L (96h, Pimephales promelas)	-	EC50: >500mg/L (48h, Daphnia magna)
Triethanolamine	EC50: =216mg/L (72h, Desmodesmus subspicatus) EC50: =169mg/L (96h, Desmodesmus subspicatus)	LC50: 10600 - 13000mg/L (96h, Pimephales promelas) LC50: >1000mg/L (96h, Pimephales promelas) LC50: 450 - 1000mg/L (96h, Lepomis macrochirus)	-	-

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1,2,3-benzotriazole	EC50: =15.4mg/L (96h, freshwater algae)	LC50: =39mg/L (96h, Oncorhynchus mykiss)	-	EC50: =141.6mg/L (48h, water flea)
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12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
Glycerol	-1.76
Triethylene glycol, monobutyl ether	0.51
Triethanolamine	-2.53
1,2-benzisothiazol-3(2H)-one	0.99

12.4. Mobility in soil

Mobility in soil No information available.

Mobility No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment This product contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This product contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Chemical name	PBT and vPvB assessment
Polyethylene glycol	The substance is not PBT / vPvB
Glycerol	The substance is not PBT / vPvB
Triethylene glycol, monobutyl ether	The substance is not PBT / vPvB
Triethanolamine	The substance is not PBT / vPvB
1,2,3-benzotriazole	The substance is not PBT / vPvB
1,2-benzisothiazol-3(2H)-one	The substance is not PBT / vPvB

12.6. Endocrine disrupting properties

Endocrine disrupting properties No information available.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products Dispose of in accordance with federal, state and local regulations.

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SECTION 14: Transport information

IATA

14.1	UN number or ID number	Not regulated
14.2	UN proper shipping name	Not regulated
14.3	Transport hazard class(es)	Not regulated
14.4	Packing group	Not regulated
14.5	Environmental hazards	Not applicable
14.6	Special precautions for user	
	Special Provisions	None

IMDG

14.1	UN number or ID number	Not regulated
14.2	UN proper shipping name	Not regulated
14.3	Transport hazard class(es)	Not regulated
14.4	Packing group	Not regulated
14.5	Environmental hazards	Not applicable
14.6	Special precautions for user	
	Special Provisions	None
14.7	Maritime transport in bulk according to IMO instruments	Not applicable

RID

14.1	UN number or ID number	Not regulated
14.2	UN proper shipping name	Not regulated
14.3	Transport hazard class(es)	Not regulated
14.4	Packing group	Not regulated
14.5	Environmental hazards	Not applicable
14.6	Special precautions for user	
	Special Provisions	None

ADR

14.1	UN number or ID number	Not regulated
14.2	UN proper shipping name	Not regulated
14.3	Transport hazard class(es)	Not regulated
14.4	Packing group	Not regulated
14.5	Environmental hazards	Not applicable
14.6	Special precautions for user	
	Special Provisions	None

SECTION 15: Regulatory information

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

National Regulations

France

Occupational Illnesses (R-463-3, France)

Chemical name	French RG number
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Triethylene glycol, monobutyl ether - 143-22-6	RG 84
Triethanolamine - 102-71-6	RG 49
1,2-benzisothiazol-3(2H)-one - 2634-33-5	RG 65

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorizations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorization per REACH Annex XIV
Triethylene glycol, monobutyl ether - 143-22-6	Use restricted. See entry 75.	-
1,2-benzisothiazol-3(2H)-one - 2634-33-5	Use restricted. See entry 75.	-

Persistent Organic Pollutants

Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Chemical name	Biocidal Products Regulation (EU) No 528/2012 (BPR)
1,2-benzisothiazol-3(2H)-one - 2634-33-5	Product-type 2: Disinfectants and algacides not intended for direct application to humans or animals Product-type 6: Preservatives for products during storage Product-type 9: Fiber, leather, rubber and polymerized materials preservatives Product-type 11: Preservatives for liquid-cooling and processing systems Product-type 12: Slimicides Product-type 13: Working or cutting fluid preservatives

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

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NZIoC Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report No chemical safety assessment has been carried out

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H330 - Fatal if inhaled
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorization:
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
vPvB: Very Persistent and very Bioaccumulative (vPvB) Chemicals

Legend SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average) STEL STEL (Short Term Exposure Limit)
Ceiling Ceiling Limit Value * Skin designation
+ Sensitizers

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	On basis of test data
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	On basis of test data

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Serious eye damage/eye irritation	On basis of test data
Respiratory sensitization	Calculation method
Skin sensitization	On basis of test data
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Chronic aquatic toxicity	Calculation method
Acute aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
World Health Organization

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End of Safety Data Sheet