

Product Name: LC401BK, LC401XLBK, LC411BK, LC411XLBK, LC421BK, LC421XLBK, LC431BK, LC431XLBK, LC431XXLBK, LC451BK, LC451XLBK, LC451XXLBK

Revision Date: 03-Sep-2021

Issuing Date: 18-Nov-2020

Revision Number: 2

Safety data sheet number: BHK273

## Section 1: Identification of the substance/mixture and of the company/undertaking

### 1.1. Product identifier

**Product Name** LC401BK, LC401XLBK, LC411BK, LC411XLBK, LC421BK, LC421XLBK, LC431BK, LC431XLBK, LC431XXLBK, LC451BK, LC451XLBK, LC451XXLBK

**Product Form** Mixture

**Safety data sheet number** BHK273

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

**Relevant identified uses** 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

**Importer** (Europe)  
Brother International Europe Ltd.  
1 Tame Street, Audenshaw, Manchester M34 5JE, UK  
Brother International (Nederland) B.V.  
Zanderij 25, 1185 ZM Amstelveen, The Netherlands  
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

## Section 2: Hazard(s) 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]

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**2.2. Label elements**

**Regulation (EC) No 1272/2008**

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

EUH208 - Contains 1,2-Benzisothiazolin-3-one May produce an allergic reaction.

**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).

**Section 3: Composition/information on ingredients**

**3.1 Substances**

Not applicable

**3.2 Mixtures**

Chemical name	CAS No	EC No	EC Index No	Weight-%	Specific concentration limit (SCL)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH Registration Number
Water	7732-18-5	231-791-2	-	60-70	-	Not classified	Not applicable
Glycerol	56-81-5	200-289-5	-	5-15	-	Not classified	Not applicable
Diethylene glycol	111-46-6	203-872-2	603-140-00-6	5-9	-	Acute Tox. 4 (H302)	01-2119457857-21-XXXX
Carbon Black	1333-86-4	215-609-9	-	5-9	-	Not classified	01-2119384822-32-XXXX
2,2'-(ethylenedioxy)diethanol	112-27-6	203-953-2	-	1-5	-	Not classified	Registered
1,2-Benzisothiazolin-3-one	2634-33-5	220-120-9	613-088-00-6	<0.05	Skin Sens. 1 :: C>=0.05%	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) Skin Sens. 1 (H317) Aquatic Acute 1 (H400)	Not applicable

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

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## Section 4: First aid measures

### 4.1. Description of first aid measures

<b>General advice</b>	If symptoms persist, call a physician.
<b>Inhalation</b>	Remove to fresh air. Get immediate medical advice/attention.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
<b>Skin contact:</b>	Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.
<b>Ingestion</b>	Obtain immediate medical attention. Wash out mouth with water and give 100-200 ml of water to drink.

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

<b>Symptoms</b>	Inhalation ( Vapor / Mist ) : 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

<b>Note to physicians</b>	Treat symptomatically.
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## Section 5: Firefighting measures

### 5.1. Extinguishing media

<b>Suitable Extinguishing Media</b>	Dry chemical, CO <sub>2</sub> , water spray or regular foam
<b>Unsuitable extinguishing media</b>	None

### 5.2. Special hazards arising from the substance or mixture

<b>Specific hazards arising from the chemical</b>	Thermal decomposition can lead to release of irritating and toxic gases and vapors Carbon monoxide Carbon dioxide (CO <sub>2</sub> ) Nitrogen oxides (NO <sub>x</sub> ) Oxides of sulfur
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### 5.3. Advice for firefighters

<b>Special protective equipment for fire-fighters</b>	Wear self contained breathing apparatus for fire fighting if necessary.
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## Section 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

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

**For emergency responders** Use personal protection recommended in Section 8.

### 6.2. Environmental precautions

### 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 skin, eyes or 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. Store in a cool, well ventilated area.

### 7.3. Specific end use(s)

**Specific use(s)** Water based ink for inkjet printing machine

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**Section 8: Exposure controls and personal protection**

**8.1. Control parameters**

**Exposure Limits**

Chemical name	European Union	United Kingdom	France	Spain	Germany
Glycerol 56-81-5	-	TWA: 10 mg/m <sup>3</sup> STEL: 30 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 200 mg/m <sup>3</sup>
Diethylene glycol 111-46-6	-	TWA: 23 ppm TWA: 101 mg/m <sup>3</sup> STEL: 69 ppm STEL: 303 mg/m <sup>3</sup>	-	-	TWA: 10 ppm TWA: 44 mg/m <sup>3</sup>
Carbon Black 1333-86-4	-	TWA: 3.5 mg/m <sup>3</sup> STEL: 7 mg/m <sup>3</sup>	TWA: 3.5 mg/m <sup>3</sup>	TWA: 3.5 mg/m <sup>3</sup>	-
2,2'-(ethylenedioxy)diethanol 112-27-6	-	-	-	-	TWA: 1000 mg/m <sup>3</sup>
Chemical name	Italy	Portugal	Netherlands	Finland	Denmark
Glycerol 56-81-5	-	TWA: 10 mg/m <sup>3</sup>	-	TWA: 20 mg/m <sup>3</sup>	-
Diethylene glycol 111-46-6	-	-	-	-	TWA: 2.5 ppm TWA: 11 mg/m <sup>3</sup>
Carbon Black 1333-86-4	-	TWA: 3 mg/m <sup>3</sup>	-	TWA: 3.5 mg/m <sup>3</sup> STEL: 7 mg/m <sup>3</sup>	TWA: 3.5 mg/m <sup>3</sup>
Chemical name	Austria	Switzerland	Poland	Norway	Ireland
Glycerol 56-81-5	-	TWA: 50 mg/m <sup>3</sup> STEL: 100 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	-	-
Diethylene glycol 111-46-6	TWA: 10 ppm TWA: 44 mg/m <sup>3</sup> STEL 40 ppm STEL 176 mg/m <sup>3</sup>	TWA: 10 ppm TWA: 44 mg/m <sup>3</sup> STEL: 40 ppm STEL: 176 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	-	TWA: 23 ppm TWA: 100 mg/m <sup>3</sup> STEL: 69 ppm STEL: 300 mg/m <sup>3</sup>
Carbon Black 1333-86-4	-	-	TWA: 4 mg/m <sup>3</sup>	TWA: 3.5 mg/m <sup>3</sup> STEL: 7 mg/m <sup>3</sup>	TWA: 3 mg/m <sup>3</sup> STEL: 15 mg/m <sup>3</sup>
2,2'-(ethylenedioxy)diethanol 112-27-6	-	TWA: 1000 mg/m <sup>3</sup> STEL: 2000 mg/m <sup>3</sup>	-	-	-

**Derived No Effect Level (DNEL)** No information available.

**Predicted No Effect Concentration (PNEC)** No information available.

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**8.2. Exposure controls**

<b>Appropriate engineering controls</b>	No information available.
<b>Personal protective equipment</b>	Not normally required. For use other than in normal operating procedures (such as in the event of large spill), the following should be applied:
<b>Eye/face protection</b>	Safety goggles.
<b>Hand protection</b>	Protective gloves.
<b>Skin and body protection</b>	If there is a risk of contact:, Apron, Boots
<b>Respiratory protection</b>	Use appropriate respiratory protection.
<b>Environmental exposure controls</b>	Avoid release to the environment.

**Section 9: Physical and chemical properties**

**9.1. Information on basic physical and chemical properties**

<b>Appearance</b>	
<b>Physical state</b>	Liquid
<b>Color</b>	black
<b>Odor</b>	Slight
<b>Odor threshold</b>	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	7 - 9	
pH (as aqueous solution)	No information available	
Melting point / freezing point	< -5 °C	
Boiling point / boiling range	> 100 °C	
Flash point	> 94 °C	Tag Closed Cup, Cleveland Open Cup
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		None known
Upper flammability limit:	No data available	
Lower flammability limit:	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Relative density	1.0 - 1.1	(H <sub>2</sub> O=1)
Water solubility	Soluble in water	
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	> 400 °C	
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	2 - 5 mPa s	

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**Explosive properties** No information available  
**Oxidizing properties** No information available

## **9.2. Other information**

### **9.2.1. Information with regard to physical hazard classes**

No information available

### **9.2.2. Other safety characteristics**

No information available

## **Section 10: Stability and reactivity**

### **10.1. Reactivity**

No information available.

### **10.2. Chemical stability**

Stable under normal conditions.

### **10.3. Possibility of hazardous reactions**

No information available.

### **10.4. Conditions to avoid**

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

### **10.5. Incompatible materials**

Acids, Bases, Oxidizing agent, Reducing agent

### **10.6. Hazardous decomposition products**

Carbon monoxide, Carbon dioxide (CO<sub>2</sub>), Nitrogen oxides (NO<sub>x</sub>), Oxides of sulfur

## **Section 11: Toxicological information**

### **11.1. Information on toxicological effects**

#### **Product Information**

**Inhalation** No information available

**Eye contact** No information available

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<b>Skin contact:</b>	No information available
<b>Ingestion</b>	Acute LD <sub>50</sub> > 2000 mg/kg (OECD 420 method)
<b>Skin corrosion/irritation</b>	Non-irritant (OECD 404 method)
<b>Serious eye damage/eye irritation</b>	Minimal irritant to the eye (OECD 405 method)
<b>Respiratory or skin sensitization</b>	Respiratory sensitization : No information available It is not a skin sensitizer (OECD 429 method)
<b>Germ cell mutagenicity</b>	AMES test : Negative (OECD 471 method)
<b>Carcinogenicity</b>	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
<b>Reproductive toxicity</b>	No information available.
<b>STOT - single exposure</b>	No information available.
<b>STOT - repeated exposure</b>	No information available
<b>Aspiration hazard</b>	No information available.
<b>Potential health effects</b>	Eye : May cause slight irritation Skin : Prolonged exposure may cause skin irritation Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea Inhalation : Not an expected route of exposure

**11.2. Information on other hazards**

No information available



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## Section 12: Ecological information

### 12.1. Toxicity

#### Ecotoxicity

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

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'-(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> )

### 12.2. Persistence and degradability

No information available.

### 12.3. Bioaccumulative potential

There is no data for this product.

#### Component Information

Chemical name	Partition coefficient
Glycerol	-1.76
Diethylene glycol	-1.98
2,2'-(ethylenedioxy)diethanol	-1.98
1,2-Benzisothiazolin-3-one	1.3

### 12.4. Mobility in soil

No information available.

### 12.5. Results of PBT and vPvB assessment

No information available.

### 12.6. Endocrine disrupting properties

No information available.

### 12.7. Other adverse effects

No information available.

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## Section 13: Disposal considerations

### 13.1. Waste treatment methods

Dispose in accordance with federal, state and local regulations.

## Section 14: Transport information

### IMDG

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

### RID

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

### ADR

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

### IATA

14.1 UN/ID no	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

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## Section 15: Regulatory information

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

#### EU-Regulations

- \* Contains no substances listed in REACH Regulation (EC) No.1907/2006 ANNEX XVII.
- \* Contains no substance listed in REACH Regulation (EC) No.1907/2006 Candidate List for Authorization.
- \* Contains no substances listed in REACH Regulation (EC) No.1907/2006 ANNEX XIV.

#### National Regulations

### 15.2. Chemical safety assessment

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  
H400 - Very toxic to aquatic life

#### **Legend**

SVHC: Substances of Very High Concern for Authorization:

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

#### **Key literature references and sources for data**

No information available

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#### **Revision Note**

SDS sections updated : 1 , 3 , 8

**This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

#### **Disclaimer**

The information relates only to this product. It may not be valid, if used in combination with any other materials or in any other process, and it is based on our best knowledge as of the date of preparation (revision).