

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	LC21Y	LC600Y	LC600Y JPN
Product Code	LK0591001	LK0600001	LK0929001
Product Name	LC08Y	LC31Y	LC800Y
Product Code	LK0999001	LK0941001	LK0990001

Other Designation Ink cartridge for the ink-jet printing machine

This product is water based ink in cartridge. Ink volume in each cartridge is approximately 11.5cc. All components in ink are listed in EPA TSCA inventory. All components in ink are listed in EINECS inventory and NLP inventory. All components in ink are listed in DSL inventory. All components in ink are listed in AICS inventory.

Ink manufacturer BROTHER INDUSTRIES, LTD.

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Date of Preparation: February 13, 2001 MSDS #BHY001

Date of Revision: April 25, 2003

2. COMPOSITION / INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS in accordance with Hazard Communication Standard issued by Occupational Safety and Health Administration (OSHA HCS).

<u>INGREDIENT NAME</u> <u>CAS#</u>	<u>EXPOSURE LIMITS</u>	<u>% by weight</u>
Glycerol 56-81-5	OSHA PEL : (as mist) Total dust TWA 10mg/m ³ Respirable fraction TWA 5mg/m ³ ACGIH TLV : (as mist) Total dust TWA 10mg/m ³	<20
Ethoxylated-2,4,7,9-Tetramethyl -5-Decyne-4,7-Diol (Ethoxylated Acetylenic Diol) 9014-85-1	OSHA HCS Hazard class : Irritant	<2

Remaining ingredients are considered non-hazardous in accordance with OSHA HCS.

HAZARDOUS INGREDIENTS in accordance with EC-Directive 67/548/EEC and Approved Criteria of Worksafe Australia.

<u>INGREDIENT NAME</u> <u>CAS#</u>	<u>EEC#</u>	<u>% by weight</u>	<u>Symbol</u>	<u>R phrases</u>
Diethylene glycol 111-46-6	203-872-2	< 10	Xn	R22
Ethoxylated-2,4,7,9-Tetramethyl -5-Decyne-4,7-Diol (Ethoxylated Acetylenic Diol) 9014-85-1	NLP No. 500-022-5	< 2	Xi	R36
1,2-Benzisothiazolin-3-one 2634-33-5	220-120-9	< 0.1	C	R34, R43

EU Hazard Symbols :
Xn : Harmful
Xi : Irritant
C : Corrosive

EU Risk(R) Phrase definitions :
R22 : Harmful if swallowed.
R34 : Causes burns.
R36 : Irritating to eyes.
R43 : May cause sensitization by skin contact.

Remaining ingredients are considered non-hazardous in accordance with EC-Directive 67/548/EEC and Approved Criteria of Worksafe Australia.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Ink in cartridge is dark yellow liquid with slight odor.
Keep out of reach of children.
Ink poses little or no immediate hazard if spilled.

POTENTIAL HEALTH EFFECTS

EYE CONTACT : Ink may cause slight irritation.

SKIN CONTACT : Prolonged exposure to ink may cause irritation.

INGESTION : Ink may cause gastrointestinal or other adverse effects.

INHALATION : Not expected to be a route of exposure.

CHRONIC EFFECTS / CARCINOGENICITY :

Specific data are not available. All ingredients of ink are not listed by IARC monographs, NTP, and OSHA regulated.

4. FIRST AID MEASURES

EYE CONTACT : Flush immediately with running water for at least 15 minutes and get medical attention.

SKIN CONTACT : Wash with water and soap.

INGESTION : Dilute with water and get medical attention.

INHALATION : Not an expected route of entry.

5. FIRE FIGHTING MEASURES

AUTOIGNITION TEMPERATURE : 410°C

FLAMMABLE LIMITS : LEL : Not available UEL : Not available

FLASH POINT : Does not flash (Tag closed cup & Cleveland opened cup)

EXTINGUISHING MEDIA :

SUITABLE: Water, CO₂, Foam, Dry chemical.

NOT TO BE USED :

SPECIAL EXPOSURE HAZARDS : Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS :

Use self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTION : In case of ink vapor formation use respirator.

ENVIRONMENTAL PRECAUTION : Take care to minimize ink that reaches to a sewer.

METHODS FOR CLEANING UP : Wipe up ink with absorbent towel. Wash with water to remove remaining traces of ink.

7. HANDLING AND STORAGE

HANDLING : Avoid skin contact with ink. Prevent eye contact with ink.

STORAGE : Keep out of reach of children. Store in a cool, dark, and dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS : Ventilation is not required under normal use.

RESPIRATORY PROTECTION : Not required under normal use.

HAND PROTECTION : Not required under normal use.

EYE PROTECTION : Not required under normal use.

SKIN PROTECTION : Not required under normal use.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE :	Dark yellow liquid
BOILING POINT :	103°C
COLOR :	Dark yellow
DENSITY :	1.07 g/cc
FREEZING POINT :	-14°C
ODOR :	Slight odor
pH :	8 – 10
PHYSICAL STATE :	Liquid
SOLUBILITY IN WATER :	Soluble
VAPOR DENSITY (AIR=1) :	Not available
VAPOR PRESSURE :	Not available

10. STABILITY AND REACTIVITY

STABILITY :	Stable.
CONDITIONS TO AVOID :	None.
MATERIALS TO AVOID :	Strong oxidizing agents.
HAZARDOUS DECOMPOSITION PRODUCTS :	Carbon monoxide, Carbon dioxide.
HAZARDOUS POLYMERIZATION :	Does not occur.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS :	Ink is classified as a MINIMAL IRRITANT.
SKIN EFFECTS :	Ink is classified as a NON IRRITANT.
ACUTE ORAL EFFECTS :	LD ₅₀ of ink is greater than 2500mg/kg.

12. ECOLOGICAL INFORMATION

Ink does not contain halogenated compounds.

13. DISPOSAL CONSIDERATIONS

Dispose of ink cartridge in accordance with local regulations.

14. TRANSPORT INFORMATION

Special information about ink cartridge transportation is not known.

15. REGULATORY INFORMATION

All components in ink are listed in EPA TSCA inventory.
All components in ink are listed in EINECS inventory and NLP inventory.
All components in ink are listed in DSL inventory.
All components in ink are listed in AICS inventory.

16. OTHER INFORMATION

The information relates only to this specific ink cartridge. It may not be valid for this ink cartridge, 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).