

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

| | | |
|--------------------------|---|-----------|
| Product Name | LC51C | LC1000C |
| Product Code | LK2084001 | LK2333001 |
| General Use | Inkjet printing | |
| Product Description | Water based ink cartridge for inkjet printing machine | |
| MSDS No. | BHIC013 | |
| Manufacturer | BROTHER INDUSTRIES, LTD. 5-1, Hamada-cho, Minami-ku, Nagoya 457-0822, JAPAN Telephone Number for Information -81-52-824-3445 | |
| Importer in USA | BROTHER INTERNATIONAL CORPORATION 100 Somerset Corporate Boulevard, P.O.Box 6911, Bridgewater, NJ 08807-0911, USA Telephone Number for Information +1-800-284-4329 | |
| Importer in Canada | BROTHER INTERNATIONAL CORP. (Canada) LTD. 1 rue Hôtel de Ville, Dollard-des-Ormeaux, Québec, H9B 3H6, CANADA Telephone Number for Information +1-514-685-0600 | |
| Importer in Australia | BROTHER INTERNATIONAL (AUST.) PTY. LTD. ACN 001 393 835 7 Khartoum Road, North Ryde, N.S.W. 2113 08875-6714, AUSTRALIA Telephone Number for Information +61-2-9887-4344 | |
| Importer in Europe | BROTHER INTERNATIONAL EUROPE LTD. Brother house, 1 Tame Street, Guide Bridge, Audenshaw, Manchester M34 5JE, UK Telephone Number for Information +44-161-330-6531 | |

Please telephone to the above office during our business hours.

2. COMPOSITION / INFORMATION ON INGREDIENTS

| CHEMICAL NAME | CAS# / EC# | % by weight | USA OSHA PEL | ACGIH TLV | EU Symbol / Risk Phrases |
|----------------------------------|-----------------------|-------------|---|--|--------------------------|
| Glycerol | 56-81-5 / 200-289-5 | 10 - 30 | (as mist) Total dust TWA 15mg/m ³ Respirable fraction TWA 5mg/m ³ | (as mist) Total dust TWA 10mg/m ³ | Not classified |
| Triethyleneglycol monobutylether | 143-22-6 / 205-502-6 | 1 - 5 | Not established | Not established | Xi / R41 |
| Cyan dye | Registered | 1 - 5 | Not established | Not established | Xi / R41 |
| Water | 7732-18-5 / 231-791-2 | 60 - 80 | Not established | Not established | Not classified |

MATERIAL SAFETY DATA SHEET**3. HAZARDS IDENTIFICATION**

EMERGENCY OVERVIEW

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

POTENTIAL HEALTH EFFECTS

- Inhalation : Not expected to be a route of exposure under normal use. If the fluid is heated, the vapor from the fluid may cause respiratory irritation
- Eye : Ink may cause slight irritation.
- Skin : Prolonged exposure to ink may cause irritation.
- Ingestion : Ink may cause gastrointestinal or other adverse effects.

CHRONIC EFFECTS / CARCINOGENICITY

Ingredients of ink have not been classified as carcinogens according to IARC monographs, NTP, and OSHA regulated.

4. FIRST AID MEASURES

- INHALATION : Remove to fresh air area and get medical attention.
- EYE : Flush immediately with running water for at least 15 minutes and get medical attention.
- SKIN : Wash with water and soap.
- INGESTION : Dilute with water and get medical attention.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

- Auto-ignition temperature : 399°C
- Flammability : L.F.L. : Not available U.F.L. : Not available
- Flash point : Does not flash (>90°C)
(Tag closed cup & Cleveland opened cup)

EXTINGUISHING MEDIA

- Suitable: Water, CO₂, Foam, Dry chemical.
- Not to be used : None

FIRE FIGHTING INSTRUCTIONS

- Special exposure hazards : Refer to section 10.
- Special protect 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.

MATERIAL SAFETY DATA SHEET**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

EXPOSURE LIMIT VALUES : Refer to section 2.
EXPOSURE CONTROLS
Engineering controls : Ventilation is not required under normal use.
Personal protection
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 blue liquid
Auto-ignition temperature : 399°C
Boiling point : 105°C
Density : 1.08g/ml
Flammability : LEL : Not available UEL : Not available
Flash point : Does not flash (>90°C)
(Tag closed cup & Cleveland opened cup)
Freezing point : -16°C
Odor : Slight odor
Partition coefficient (n-octanol/water) : Not available
pH : 7 - 9
Solubility in water : Soluble
Vapor density (Air=1) : Not available
Vapor pressure : Not available
Viscosity : 2 - 5 mPa·s

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

Acute oral toxicity : LD₅₀ of ink is greater than 2500mg/kg.
Eye irritation : Ink is classified as a MINIMAL IRRITANT.
Skin irritation : Ink is classified as a NON IRRITANT.

MATERIAL SAFETY DATA SHEET**12. ECOLOGICAL INFORMATION**

PERSISTENCE AND DEGRADABILITY : Not available
BIOACCUMULATIVE POTENTIAL : Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

US DEPARTMENT OF TRANSPORTATION (DOT) : Not applicable
MARITIME TRANSPORT IMDG : Not applicable
AIR TRANSPORT ICAO/IATA : Not applicable

15. REGULATORY INFORMATION

US REGULATIONS

TSCA STATUS : All components in ink are listed on TSCA inventory.

EUROPEAN REGULATIONS

EU NOTIFICATION : All components in ink are listed on EINECS or ELINCS or NLP inventory.

EU HAZARD LABEL : Ink does not need to be labeled in accordance with EC-Directive 1999/45/EC.

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).

EU Hazard Symbols : Xi : Irritant
EU Risk (R) Phrase definitions : R41 : Risk of serious damage to eyes.

MATERIAL SAFETY DATA SHEET

Key

| | |
|-----------|---|
| ACGIH TLV | TLV (Threshold Limit Value) under American Conference of Governmental Industrial Hygienists |
| DOT | Department Of Transportation (USA) |
| EINECS | European Inventory of Existing Commercial Chemical Substances (EU) |
| ELINCS | European List of Notified Chemical Substances (EU) |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| NLP | No-Longer Polymers List (EU) |
| NTP | National Toxicology Program (USA) |
| OSHA | Occupational Safety and Health Administration (USA) |
| OSHA HCS | Hazard Communication Standard issued by Occupational Safety and Health Administration (USA) |
| OSHA PEL | PEL (Permissible Exposure Limit) under Occupational Safety and Health Administration (USA) |
| TSCA | Toxic Substances Control Act (USA) |