SAFETY DATA SHEETS

This SDS packet was issued with item:

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N/A

First issue: Dec. 26, 2007
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MSDS No.: BHC018

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Product name: LC61C, LC65HY-C, LC980C, LC1100C, LC1100HY-C, LC38C, LC67C, LC990C

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	LC61C	LC65HY-C	LC980C	LC1100C
Product Code	LK33366001	LK3291001	LK3374001	LK3572001
Product Name	LC1100HY-C	LC38C	LC67C	LC990C
Product Code	LK3523001	LK3661001	LK3669001	LK3649001

General Use: Inkjet printing
Product Description: Water based ink cartridge for inkjet printing machine
MSDS No.: BHC018

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. 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.
Eye : Ink may cause slight irritation.
Skin : Prolonged exposure to ink may cause irritation.
Ingestion : Ink may cause gastrointestinal or other adverse effects.

MATERIAL SAFETY DATA SHEET

CHRONIC EFFECTS / CARCINOGENICITY

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

EU HAZARD LABEL

Ink is not classified according to EU-Directive 1999/45/EC.

3. 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
Diethylene glycol	111-46-6 / 203-872-2	1 – 5	Not established	Not established	Xn / R22
Triethylene glycol monobutyl ether	143-22-6 / 205-592-6	1 – 4	Not established	Not established	Xi / R41
Cyan dye	Registered	1 - 4	Not established	Not established	Xi / R41 R52/53
Water	7732-18-5 / 231-791-2	50 - 70	Not established	Not established	Not established

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 : 426°C

Flammability : LEL : Not available UEL : Not available

Flash point : Does not flash (>93.3°C)
(Tag closed cup & Cleveland opened cup)

EXTINGUISHING MEDIA

Suitable: Water, CO_2, Foam, Dry chemical.

Not to be used : None

MATERIAL SAFETY DATA SHEET

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.
METHODES 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

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 :	426°C
Boiling point :	103°C
Density :	1.07 g/ml
Flammability :	LEL : Not available UEL : Not available
Flash point :	Does not flash (>93.3°C) (Tag closed cup & Cleveland opened cup)
Freezing point :	-9°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

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Product name: LC61C, LC65HY-C, LC980C, LC1100C, LC1100HY-C, LC38C, LC67C, LC990C

MATERIAL SAFETY DATA SHEET

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 :	LD_{50} of ink is greater than 2000mg/kg.
Eye irritation :	Ink is classified as a MINIMAL IRRITANT.
Skin irritation :	Ink is classified as a NON IRRITANT.

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 in EINECS, ELINCS or NLP Inventory.

EU HAZARD LABEL : Ink is not classified according to EU-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).

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Product name: LC61C, LC65HY-C, LC980C, LC1100C, LC1100HY-C, LC38C. LC67C. LC990C

MATERIAL SAFETY DATA SHEET

EU Hazard Symbols :	Xn : Harmful Xi : Irritant
EU Risk (R) Phrase definitions :	R22 : Harmful if swallowed. R41 : Risk of serious damage to eyes. R52/53 : Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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)
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)

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

1.1 Product identifier

Product name (code)

LC11C (LK3637001, LC4690001), LC16C (LK3526001, LK4710001),
LC38C (LK3661001, LK4196001), LC39C (LK5405001), LC60C (LK5729001),
LC61C (LK3366001, LK4297001), LC67C (LK3669001, LK4222001), LC975C (LK5670001),
LC980C (LK3374001, LK4048001), LC985C (LK4621001, LK5401001), LC990C (LK4461001),
LC1100C (LK3572001, LK3985001), LC65HYC (LK3291001, LK4330001),
LC67HYC (LK3524001, LK4277001), LC990HYC (LK3525001, LK4481001),
LC1100HYC (LK3523001, LK4021001)

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

Relevant Identified 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. Information provided on this SDS is only consistent with the use specified by Brother.

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 (USA)

Brother International Corporation
200 Crossing Boulevard, Bridgewater, NJ 08807, USA
Telephone (for information): +1-877-276-8437

Importer (Canada)

Brother International Corporation (Canada) Ltd.
1 Hotel de Ville, Dollard des Ormeaux, Quebec, H9B 3H6, Canada
Telephone (for information): +1-514-685-0600

Importer (Europe)

Brother International Europe Ltd.
Brother House, 1 Tame Street, Guide Bridge, Audenshaw, Manchester M34 5JE, UK
Telephone (for information): +44-161-330-6531

Importer (Australia)

Brother International (Aust.) Pty. Ltd. ACN 001 393 835
Level 3, Building A, 11 Talavera Road, Macquarie Park, NSW 2113, Australia
Telephone (for information): +61-2-9887-4344

E-mail Address

sds.info@brother.co.jp

1.4 Emergency telephone number

Emergency Telephone (24 hours)

CHEMTREC
+1-703-527-3887 (International)
+1-800-424-9300 (North America)

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Not classified as hazardous

Classification according to Directive 1999/45/EC

Not classified as hazardous

Australia Classification

Not classified as hazardous according to the criteria of NOHSC

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008

Hazard pictograms
None

Signal Word
None

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

Precautionary statements
None

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

3.2 Mixtures

Description of the mixture: Water based inkjet ink (Mixture).

Chemical Name	CAS-No	EC-No	w/w%	Classification (67/548/EEC)	Classification (EU Reg. 1272/2008)
Glycerol	56-81-5	200-289-5	15-25	Not classified	Not classified
Triethylene glycol monobutyl ether	143-22-6	205-592-6	1-5	Xi; R41	Eye Dam. 1 (H318)
Diethylene glycol	111-46-6	203-872-2	1-5	Xn; R22	Acute Tox. 4 (H302)
Cyan Dye (Copper Phthalocyanine derivative dye)	*	445-470-1	<5	Xi; R41 R52/53	Eye Dam. 1 (H318) Aquatic Chronic 3 (H412)
Water	7732-18-5	231-791-2	65-75	Not classified	Not classified
1,2-benzisothiazol-3(2H)-one	2634-33-5	220-120-9	< 0.05	Xn; R22 Xi; R41 Xi; R38 R43 N; R50	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400

For the full text of R-phrases and H-Statements see Section 16

* Registered

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice	If symptoms persist, obtain medical attention.
Inhalation	Obtain medical attention. In case of accident by inhalation remove casualty to fresh air and keep at rest.
Skin contact	Remove contaminated clothing immediately and wash affected skin with plenty of water or soap and water.
Eye contact	Obtain medical attention. If substance has got into the eyes, immediately wash out with plenty of water for at least 15 minutes.
Ingestion	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

Skin contact: Repeated and/or prolonged skin contact may cause irritation.

Eye contact: May cause eye irritation.

Ingestion: Ingestion may cause irritation of the gastrointestinal tract. Unlikely route of exposure.

Inhalation: Unlikely route of exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable Extinguishing Media — Extinguish preferably with dry chemical, carbon dioxide, water spray, foam.

Unsuitable Extinguishing Media — None.

5.2 Special hazards arising from the substance or mixture — Thermal decomposition of organic components may result in occurrence of oxides of carbon. Toxic gases may be formed upon combustion and represents a hazard to firefighters. Combustion products: See Section: 10.

5.3 Advice for firefighters — Use appropriate respirator for carbon monoxide and carbon dioxide. Wear positive pressure self-contained breathing apparatus (SCBA) during the attack phase of firefighting operations and during cleanup in enclosed or poorly ventilated areas immediately after a fire. Personnel not having suitable respiratory protection must leave the area to prevent significant exposure to toxic combustion gases from any source.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures — Ensure adequate ventilation. Avoid contact with eyes.

6.2 Environmental precautions — Prevent substance entering sewers. Washings must be prevented from entering surface water drains.

6.3 Methods and materials for containment and cleaning up — Wipe up with absorbent towel Wash with water to remove remaining traces of ink

6.4 Reference to other sections — For personal protection: See section 8.
For disposal considerations: See section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling — Keep out of the reach of children. Avoid contact with skin and eyes.

7.2 Conditions for safe storage, including any incompatibilities — Keep away from oxidizing agents.

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

SECTION 8: Exposure controls/personal protection

8.1 Control Parameters

Occupational Exposure Limits

Chemical Name	Glycerol 56-81-5
ACGIH TLV	TWA: 10 mg/m^3 mist
OSHA PEL	TWA: 15 mg/m^3 mist, total particulate TWA: 5 mg/m^3 mist, respirable fraction
European Union	-
The United Kingdom	STEL: 30 mg/m^3 TWA: 10 mg/m^3

France	TWA: 10 mg/m^3
Spain	TWA: 10 mg/m^3
Germany	TWA: 50 mg/m^3 Ceiling / Peak: 100 mg/m^3
Portugal	TWA: 10 mg/m^3
Finland	TWA: 20 mg/m^3
Switzerland	STEL: 100 mg/m^3 TWA: 50 mg/m^3
Poland	TWA: 10 mg/m^3
Ireland	TWA: 10 mg/m^3
Chemical Name	**Diethylene glycol** **111-46-6**
ACGIH TLV	-
OSHA PEL	-
European Union	-
The United Kingdom	STEL: 69 ppm STEL: 303 mg/m^3 TWA: 23 ppm TWA: 101 mg/m^3
Germany	TWA: 10 ppm TWA: 44 mg/m^3 Ceiling / Peak: 40 ppm Ceiling / Peak: 176 mg/m^3
Denmark	TWA: 2.5 ppm TWA: 11 mg/m^3
Austria	STEL 40 ppm STEL 176 mg/m^3 TWA: 10 ppm TWA: 44 mg/m^3
Switzerland	STEL: 40 ppm STEL: 176 mg/m^3 TWA: 10 ppm TWA: 44 mg/m^3
Poland	TWA: 10 mg/m^3
Ireland	TWA: 23 ppm TWA: 100 mg/m^3

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 Protection Safety goggles.
Hand Protection Protective gloves.
Skin and body protection Long sleeved clothing and long pants.
Respiratory protection Large spillages: Wear suitable respiratory protective equipment.

Environmental Exposure Controls Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	Liquid
Color	Dark blue
Odor	Slight
Odor Threshold	No information available
pH	7 - 9
Melting point/freezing point	-/< -5 °C
Initial boiling point and boiling range	> 100 °C
Flash Point	Not less than 93.3°C (Tag closed cup; Cleveland open cup)
Evaporation rate	No information available
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	No information available
Vapor pressure	No information available
Vapor density	No information available
Relative density	1.0 - 1.1 (H_2O=1)
Solubility(ies)	Soluble (water)
Partition coefficient: n-octanol/water	No information available
Auto-ignition temperature	>400 °C
Decomposition temperature	No information available
Viscosity	1 - 5 mPa·s
Explosive properties	Not explosive
Oxidizing properties	No information available

9.2 Other information

No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity	No information available.
10.2 Chemical stability	Stable.
10.3 Possibility of hazardous reactions	No information available.
10.4 Conditions to avoid	No information available.
10.5 Incompatible materials	Strong oxidizing agents.
10.6 Hazardous decomposition products	Contains: Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	No information available.
Eye contact	No information available.
Skin contact	No information available.
Ingestion	LD_{50} > 2000 mg/kg (Method OECD#420)

Skin corrosion/irritation	Non-irritant. (Method: OECD#404)
Serious eye damage/irritation	Minimal irritant to the eye. (Method: OECD#405)
Respiratory or skin sensitisation	It is not a skin sensitizer. (Method: OECD#429)
Mutagenicity	Negative. (Method: OECD#471)
Carcinogenicity	**Ingredients of this product have not been classified as carcinogens according to IARC monographs, NTP and OSHA**

SECTION 12: Ecological information

12.1 Toxicity

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Glycerol 56-81-5		LC_{50}: 51 - 57 mL/L 96 h static (Oncorhynchus mykiss)	EC_{50}: >500 mg/L 24 h (Daphnia magna)
Triethylene glycol monobutyl ether 143-22-6	EC_{50}: >500 mg/L 72 h (Desmodesmus subspicatus)	LC_{50}: 2200 - 4600 mg/L 96 h static (Leuciscus idus) LC_{50}: 2400 mg/L 96 h static (Pimephales promelas) LC_{50}: 2400 mg/L 96 h (Pimephales promelas)	EC_{50}: >500 mg/L 48 h (Daphnia magna)
Diethylene glycol 111-46-6		LC_{50}: 75200 mg/L 96 h flow-through (Pimephales promelas)	EC_{50}: 84000 mg/L 48 h (Daphnia magna)

12.2 Persistance and degradability No information available.

12.3 Bioaccumulative potential

Chemical Name	log Pow
Glycerol	-1.76
Triethylene glycol monobutyl ether	0.51
Diethylene glycol	-1.98

12.4 Mobility in soil No information available.

12.5 Results of 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).

12.6 Other adverse effects No information available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods Dispose of in accordance with Federal, State, and local regulations.

SECTION 14: Transport information

Not classified according to the United Nations "Recommendations on the Transport of Dangerous Goods"

14.1 UN Number	None
14.2 UN proper shipping name	None
14.3 Transport hazard class(es)	None
14.4 Packing Group	None
14.5 Environmental hazards	None
14.6 Special precautions for user	None
14.7 Transport in bulk according to Annex II of Marpol 73/78 and the IBC Code	Not applicable

Not regulated under DOT, IMDG, IATA.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	**EU:**Not classified as dangerous for supply/use. (1999/45/EC) **USA:** All chemical substances contained in this product are and had been listed on the TSCA Chemical Substances Inventory, and none is subject to any of the following TSCA requirements: section 4 test rules; proposed or final section 5(a)(2) significant new use rules; section 5(e) consent orders; section 8(a) preliminary assessment information rules; and section 8(d) health and safety data reporting rules. **Canada:** WHMIS: Not applicable. (Manufactured article)
15.2 Chemical Safety Assessment	No.

SECTION 16: Other information

Full text of R-phrases referred to under sections 2 and 3

R22 - Harmful if swallowed
R41 - Risk of serious damage to eyes
R38 - Irritating to skin
R43 - May cause sensitization by skin contact
R50 - Very toxic to aquatic organisms
R52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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

H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage
H317 - May cause an allergic skin reaction
H400 - Very toxic to aquatic life
H412 - Harmful to aquatic life with long lasting effects

Additional information

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).

Revision Note

SECTION 2, 3.

References:

U.S. 29CFR Part 1910
ACGIH Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices
IARC Monographs on the Evaluation Carcinogenic Risks to Humans World Health Organization
EU Directive 91/322/EEC and 2000/39/EC
NTP 11th Report on Carcinogens

Abbreviations:

ACGIH: American Conference of Governmental Industrial Hygienists
DOT: Department Of Transportation (US)
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods
NOHSC: National Occupational Health and Safety Commission (Australia)
NTP: National Toxicology Program (US)
OSHA: Occupational Safety and Health Administration (US)
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit
TLV: Threshold Limit Value (ACGIH)
TSCA: Toxic Substances Control Act (US)
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Material Information System (Canada)