

Safety Data Sheet

MORPHOLINE 99% TECH GRADE

Version 1.7

Revision Date: 07/08/2025

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : MORPHOLINE 99% TECH GRADE

Recommended use of the chemical and restrictions on use

Recommended use : Industrial chemical

Manufacturer or supplier's details

Company : Univar Solutions USA
Address : 3075 Highland Pkwy Suite 200
 Downers Grove, IL 60515
 United States of America (USA)

Emergency telephone number:

Transport North America: CHEMTREC (1-800-424-9300)

CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
 E-mail: SDSNA@univarsolutions.com
 SDS Requests: 1-855-429-2661
 Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 3
 Acute toxicity (Oral) : Category 4
 Acute toxicity (Inhalation) : Category 3
 Acute toxicity (Dermal) : Category 3
 Skin corrosion : Category 1A
 Serious eye damage : Category 1
 Reproductive toxicity : Category 2

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.
 H302 Harmful if swallowed.
 H311 + H331 Toxic in contact with skin or if inhaled.
 H314 Causes severe skin burns and eye damage.
 H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

Precautionary statements : **Prevention:**

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P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Pure substance

Hazardous components

CAS-No.	Chemical name	Weight percent
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110-91-8	Morpholine	90 - 100
107-15-3	1,2-Ethanediamine	0.1 - 1
100-74-3	4-Ethylmorpholine	0.1 - 1

Any Concentration shown as a range is due to batch variation.

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
Take victim immediately to hospital.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
Water mist
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire-fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : No hazardous combustion products are known
- Further information : Collect contaminated fire extinguishing water separately. This

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Special protective equipment for firefighters	must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers. : Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.
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SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Environmental precautions	: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	: Neutralise with acid. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	: Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition.
Advice on safe handling	: Avoid formation of aerosol. Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	: No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
110-91-8	Morpholine	TWA	20 ppm	ACGIH
		TWA	20 ppm 70 mg/m3	NIOSH REL
		ST	30 ppm 105 mg/m3	NIOSH REL
		TWA	20 ppm 70 mg/m3	OSHA Z-1
		TWA	20 ppm 70 mg/m3	OSHA P0
		STEL	30 ppm 105 mg/m3	OSHA P0
		PEL	20 ppm 70 mg/m3	CAL PEL
		STEL	30 ppm 105 mg/m3	CAL PEL
107-15-3	1,2-Ethanediamine	TWA	10 ppm	ACGIH
		TWA	10 ppm 25 mg/m3	NIOSH REL
		TWA	10 ppm 25 mg/m3	OSHA Z-1
		TWA	10 ppm 25 mg/m3	OSHA P0
		PEL	10 ppm 25 mg/m3	CAL PEL
100-74-3	4-Ethylmorpholine	TWA	5 ppm	ACGIH
		TWA	5 ppm 23 mg/m3	NIOSH REL
		TWA	20 ppm 94 mg/m3	OSHA Z-1
		TWA	5 ppm 23 mg/m3	OSHA P0
		PEL	5 ppm 23 mg/m3	CAL PEL

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respi-

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rator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection. In the case of vapour formation use a respirator with an approved filter.

Hand protection

Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	Clear, colorless, yellow
Odour	:	ammoniacal
Odour Threshold	:	No data available
pH	:	10.1 - 11 @ 20 - 25 °C (68 - 77 °F)
Freezing Point (Melting point/range)	:	-5 - -4.9 °C (23 - 23.2 °F)
Boiling Point (Boiling point/boiling range)	:	128 - 130 °C (262 - 266 °F)
Flash point	:	32 °C (90 °F) Method: closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	11.2 - 15.2 %(V)
Lower explosion limit	:	1.4 - 1.8 %(V)
Vapour pressure	:	7.5 mmHg @ 20 °C (68 °F)
Relative vapour density	:	3 @ 20 °C (68 °F) (Air = 1.0)
Relative density	:	1.0007 @ 20 °C (68 °F) Reference substance: (water = 1)
Density	:	1 g/cm ³ @ 20 °C (68 °F)

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Solubility(ies)	
Water solubility	: completely miscible
Solubility in other solvents	: completely miscible Solvent: organic solvents
Partition coefficient: n-octanol/water	: log Pow: -2.55 @ 25 °C (77 °F) pH: 7
Auto-ignition temperature	: 255 °C
Thermal decomposition	: No data available
Viscosity	
Viscosity, dynamic	: 2.23 mPa.s @ 20 °C (68 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No hazards to be specially mentioned.
Conditions to avoid	: Keep away from heat, flame, sparks and other ignition sources.
Incompatible materials	: Metals Oxidizing agents Strong acids
Hazardous decomposition products	: Carbon oxides Nitrogen oxides (NOx)

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute oral toxicity	: Acute toxicity estimate: 1,906 mg/kg
Acute inhalation toxicity	: Acute toxicity estimate: 3.01 mg/l Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity	: Acute toxicity estimate: 498.5 mg/kg

Components:**110-91-8:**

Acute oral toxicity	: LD50 (Rat): 1,900 mg/kg Assessment: The component/mixture is moderately toxic after single ingestion.
Acute inhalation toxicity	: LC50 (Rat): 18.1 mg/l

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Exposure time: 6 h

Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity

: LD50 (Rabbit): Calculated 500 mg/kg

Assessment: The component/mixture is toxic after single contact with skin.

107-15-3:

Acute oral toxicity

: LD50 (Rat, male and female): 866 mg/kg

Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity

: LC50 (Rat, male): 7.35 mg/l

Exposure time: 8 h

Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity

: LD50 (Rabbit): 560 mg/kg

Assessment: The component/mixture is toxic after single contact with skin.

100-74-3:

Acute oral toxicity

: LD50 (Rat): 1,780 mg/kg

Assessment: The component/mixture is moderately toxic after single ingestion.

Acute dermal toxicity

: Assessment: The component/mixture is toxic after single contact with skin.

Skin corrosion/irritation**Components:****110-91-8:**

Species: Rabbit

Result: Causes severe burns.

107-15-3:

Species: Rabbit

Exposure time: 24 h

Result: Causes burns.

100-74-3:

Species: Rabbit

Result: Causes burns.

Serious eye damage/eye irritation**Components:****100-74-3:**

Species: Rabbit

Result: Risk of serious damage to eyes.

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Respiratory or skin sensitisation

Components:

107-15-3:

Test Type: Maximization test

Species: Guinea pig

Result: The product is a skin sensitiser, sub-category 1B.

Result: The product is a respiratory sensitiser, sub-category 1B.

Remarks: No data available

Germ cell mutagenicity

Components:

100-74-3:

Genotoxicity in vitro

: Test Type: Chromosome aberration test in vitro

Species: Chinese hamster ovary (CHO)

Metabolic activation: with and without metabolic activation

Result: negative

Germ cell mutagenicity -
Assessment

: Tests on bacterial or mammalian cell cultures did not show
mutagenic effects.

Carcinogenicity

Components:

100-74-3:

Carcinogenicity - Assess-
ment

: Carcinogenicity classification not possible from current data.

IARC

No component of this product present at levels greater than or
equal to 0.1% is identified as probable, possible or confirmed
human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or
equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or
equal to 0.1% is identified as a known or anticipated carcinogen
by NTP.

Reproductive toxicity

Components:

100-74-3:

Reproductive toxicity - As-
sessment

Animal testing did not show any effects on fertility.

Teratogenicity - Assessment

: Animal testing did not show any effects on foetal develop-
ment.

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Further information**Product:**

Remarks: Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

Acute aquatic toxicity- Assessment : Harmful to aquatic life.

Components:**107-15-3:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 11.5 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 16.7 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 151 mg/l
Exposure time: 96 h

Toxicity to fish (Chronic toxicity) : NOEC (Gasterosteus aculeatus (threespine stickleback)): > 10 mg/l
Exposure time: 28 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.16 mg/l
Exposure time: 21 d

Acute aquatic toxicity- Assessment : Harmful to aquatic life.

Chronic aquatic toxicity- Assessment : Harmful to aquatic life with long lasting effects.

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects**Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances

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Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):

UN2054, Morpholine, 8 (3), I

IATA (International Air Transport Association):

UN2054, Morpholine, 8 (3), I

IMDG (International Maritime Dangerous Goods):

UN2054, MORPHOLINE, 8, (3), I, Flash Point:32 °C(90 °F)

SECTION 15. REGULATORY INFORMATION

WHMIS Classification : B2: Flammable liquid
D1B: Toxic Material Causing Immediate and Serious Toxic Effects
E: Corrosive Material

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
1,2-Ethanediamine	107-15-3	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ	Calculated product RQ
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		(lbs)	(lbs)
1,2-Ethanediamine	107-15-3	5000	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 302 : The following components are subject to reporting levels established by SARA Title III, Section 302:

SARA 313 : 107-15-3 1,2-Ethanediamine
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

110-91-8 Morpholine

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

107-15-3 1,2-Ethanediamine

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

107-15-3 1,2-Ethanediamine

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

110-91-8 Morpholine
107-15-3 1,2-Ethanediamine

Pennsylvania Right To Know

110-91-8 Morpholine
109-86-4 Ethanol, 2-methoxy-
107-15-3 1,2-Ethanediamine

California Prop 65

 **WARNING:** This product can expose you to chemicals including Ethanol, 2-methoxy-, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

The components of this product are reported in the following inventories:

TSCA : All substances listed as active on the TSCA inventory

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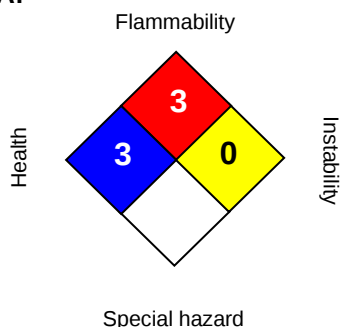
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AIIC	: On the inventory, or in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
ENCS	: On the inventory, or in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3
FLAMMABILITY	3
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

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Legacy SDS: : R0003825, 140000000608

Material number:

16221598, 16204436, 16175707, 16175564, 16177157, 16179111, 16162293, 16148891, 16143346, 743251, 554099, 88803, 88403, 54890, 71410, 122400, 157970, 104201, 20422, 20420, 20421

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Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		