



Orfom® MCO (Flotation Oil)

Version 2.7

Revision Date 2019-05-09

according to GB/T 16483 and GB/T 17519

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

Product information

Product Name : Orfom® MCO (Flotation Oil)
 Material : 1119702, 1119671, 1119669, 1119668, 1119693, 1119692,
 1119650, 1117263, 1114151, 1108013, 1104301, 1096190,
 1086158, 1016847, 1016846

Use : Mineral Processing Aide

Company : Chevron Phillips Chemical Company LP
 Specialty Chemicals
 10001 Six Pines Drive
 The Woodlands, TX 77380

Emergency telephone:

Health:

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

Responsible Department : Product Safety and Toxicology Group

E-mail address : SDS@CPChem.com

Website : www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture

GHS Classification and Labeling: Follow GB 13690, GB 15258 and GB 30000.2 to GB 30000.29 (GHS 2011)

Emergency Overview

Danger

Physical state: Liquid **Color:** Black **Odor:** Mild

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Hazards : Flammable liquid and vapor. May be harmful if swallowed. Causes skin irritation. May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Classification

: Flammable liquids, Category 3
 Acute toxicity, Category 5, Oral
 Skin corrosion/irritation, Category 2
 Carcinogenicity, Category 1B
 Reproductive toxicity, Category 2
 Specific target organ systemic toxicity - repeated exposure, Category 2, Blood, Liver, thymus gland
 Aspiration hazard, Category 1
 Short-term (acute) aquatic hazard, Category 1
 Long-term (chronic) aquatic hazard, Category 1

Labeling**Symbol(s)****Signal Word**

: Danger

Hazard Statements

: H226: Flammable liquid and vapor.
 H303: May be harmful if swallowed.
 H304: May be fatal if swallowed and enters airways.
 H315: Causes skin irritation.
 H350: May cause cancer.
 H361: Suspected of damaging fertility or the unborn child.
 H373: May cause damage to organs (Blood, Liver, thymus gland) through prolonged or repeated exposure.
 H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements

: **Prevention:**
 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.
 P260: Do not breathe dust/fume/gas/mist/vapor/spray.
 P264: Wash skin thoroughly after handling.
 P271: Use only outdoors or in a well-ventilated area.
 P273: Avoid release to the environment.
 P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
 P301 + P310: IF SWALLOWED: Immediately call a POISON

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CENTER/doctor.
 P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304 + P340 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
 P312: Call a POISON CENTER/doctor if you feel unwell.
 P331: Do NOT induce vomiting.
 P332 + P313: If skin irritation occurs: Get medical advice/attention.
 P362 + P364: Take off contaminated clothing and wash it before reuse.
 P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
 P391: Collect spillage.
Storage:
 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.

SECTION 3: Composition/information on ingredients

Synonyms : Collector
 Molecular formula : Mixture

Chemical name	CAS-No. / EINECS-No.	Concentration [wt%]
Decant (clarified) Oils	64741-62-4	0 - 80
Light Cycle Oil	64741-59-9	0 - 80

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

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SECTION 5: Firefighting measures

Flash point	:	43 °C (110 °F) Method: PMCC
Autoignition temperature	:	No data available
Suitable extinguishing media	:	Carbon dioxide (CO ₂).
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.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This 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.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation.
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 for cleaning up	:	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). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage**Handling**

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid

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exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : 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. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Use : Mineral Processing Aide

SECTION 8: Exposure controls/personal protection**Engineering measures**

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.

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- Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear as appropriate: Flame retardant protective clothing. Footwear protecting against chemicals.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties****Appearance**

- Physical state : Liquid
 Color : Black
 Odor : Mild

Safety data

- Flash point : 43 °C (110 °F)
 Method: PMCC
- Lower explosion limit : No data available
- Upper explosion limit : No data available
- Autoignition temperature : No data available
- Molecular formula : Mixture
- Molecular weight : Not applicable
- pH : Not applicable
- Pour point : No data available
- Boiling point/boiling range : 165 - 538 °C (329 - 1,000 °F)
- Vapor pressure : 1.00 MMHG
 at 21 °C (70 °F)
 estimated
- Relative density : 0.985
 at 15.6 °C (60.1 °F)
- Water solubility : Negligible
- Partition coefficient: n-octanol/water : No data available
- Viscosity, kinematic : 35 - 45 cSt
 at 25 °C (77 °F)
- Relative vapor density : 3
 (Air = 1.0)
- Evaporation rate : 1

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SECTION 10: Stability and reactivity

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Hazardous decomposition products : Carbon oxides
Sulfur oxides

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**Orfom® MCO (Flotation Oil)**

Acute oral toxicity : : 3,678 mg/kg
Method: Acute toxicity estimate

Acute toxicity estimate: 2,500 mg/kg
Method: Calculation method

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Acute inhalation toxicity : : > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Acute toxicity estimate

Acute toxicity estimate: 2.72 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

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Acute dermal toxicity : : > 2,000 mg/kg
Method: Acute toxicity estimate

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Orfom® MCO (Flotation Oil)**Skin irritation** : Irritating to skin.**Orfom® MCO (Flotation Oil)****Eye irritation** : Vapors may cause irritation to the eyes, respiratory system and the skin.**Orfom® MCO (Flotation Oil)****Sensitization** : Contains no substance or substances classified as sensitizing. Information refers to the main ingredient.**Repeated dose toxicity**

Decant (clarified) Oils : Species: Rat
 Application Route: Dermal
 Dose: 0, 8, 30, 125, 500 mg/kg
 Exposure time: 13 wk
 Lowest observable effect level: 8 mg/kg
 Target Organs: Liver

Light Cycle Oil

Species: Rat, males
 Sex: males
 Application Route: Dermal
 Dose: 0, 8, 25, 125, 500, 1250 mg/kg
 Exposure time: 90 day
 Number of exposures: 5 days/wk
 NOEL: 25 mg/kg
 Target Organs: Blood, Liver, Thymus

Species: Rat, females
 Sex: females
 Application Route: Dermal
 Dose: 0, 8, 25, 125, 500, 1250 mg/kg
 Exposure time: 90 day
 Number of exposures: 5 days/wk
 NOEL: 125 mg/kg
 Target Organs: Blood, Liver, Thymus

Genotoxicity in vitro

Decant (clarified) Oils : Test Type: Modified Ames test
 Result: positive

Test Type: Mouse lymphoma assay
 Result: positive

Test Type: Sister Chromatid Exchange Assay
 Result: positive

Test Type: Unscheduled DNA synthesis assay
 Result: positive

Test Type: Cell transformation assay
 Result: Ambiguous

Light Cycle Oil : Test Type: Modified Ames test
 Result: positive

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Test Type: Mouse lymphoma assay
Result: positive

Test Type: Sister Chromatid Exchange Assay
Result: negative

Genotoxicity in vivo

Decant (clarified) Oils : Test Type: Sister Chromatid Exchange Assay
Result: positive

Light Cycle Oil : Test Type: Cytogenetic assay
Result: negative

Reproductive toxicity

Decant (clarified) Oils : Suspected of damaging fertility or the unborn child.

Developmental Toxicity

Decant (clarified) Oils : Species: Rat
Application Route: Dermal
Dose: 0, 0.05, 1, 50, 250 mg/kg/bw/d
Exposure time: 6h/d
Number of exposures: daily
Test period: GD 0-19
NOAEL Teratogenicity: 0.05 mg/kg
NOAEL Maternal: 0.05 mg/kg
Suspected of damaging fertility or the unborn child.

Light Cycle Oil : Species: Rat
Application Route: Dermal
Dose: 1, 50, 250 mg/kg/d
Number of exposures: once daily
Test period: GD 0-19
Method: OECD Guideline 414
NOAEL Teratogenicity: 1 mg/kg
NOAEL Maternal: 1 mg/kg

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Aspiration toxicity : May be fatal if swallowed and enters airways.

CMR effects

Decant (clarified) Oils : Carcinogenicity: Possible human carcinogen
Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

Light Cycle Oil : Carcinogenicity: Possible human carcinogen

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Further information : Solvents may degrease the skin. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

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SECTION 12: Ecological information**Toxicity to fish**

Decant (clarified) Oils : LL50: 79 mg/l
 Exposure time: 96 h
 semi-static test Method: OECD Test Guideline 203
 Information given is based on data obtained from similar substances.

Light Cycle Oil LL50: > 0.3 mg/l
 Exposure time: 96 h
 Species: Oncorhynchus mykiss (rainbow trout)
 semi-static test Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Decant (clarified) Oils : EL50: 0.22 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 static test Method: OECD Test Guideline 202

Light Cycle Oil EL50: 0.32 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 Immobilization Method: OECD Test Guideline 202

Toxicity to algae

Decant (clarified) Oils : EL50: 0.32 mg/l
 Exposure time: 72 h
 static test Method: OECD Test Guideline 201

Light Cycle Oil EL50: 0.51 mg/l
 Exposure time: 72 h
 Species: Pseudokirchneriella subcapitata (green algae)
 Growth inhibition Method: OECD Test Guideline 201

M-Factor

Clarified oils (petroleum),
 catalytic cracked : M-Factor (Acute Aquat. Tox.) 1
 M-Factor (Chron. Aquat. Tox.) 1

M-Factor

Distillates (petroleum), light
 catalytic cracked : M-Factor (Acute Aquat. Tox.) 1
 M-Factor (Chron. Aquat. Tox.) 1

Biodegradability : This material is not expected to be readily biodegradable.

Elimination information (persistence and degradability)

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Results of PBT assessment	
Decant (clarified) Oils	: Non-classified PBT substance, Non-classified vPvB substance
Light Cycle Oil	: Non-classified PBT substance, Non-classified vPvB substance
Additional ecological information	: Very toxic to aquatic life with long lasting effects.
Ecotoxicology Assessment	
Short-term (acute) aquatic hazard	
Decant (clarified) Oils	: Very toxic to aquatic life.
Light Cycle Oil	: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard	
Decant (clarified) Oils	: Very toxic to aquatic life with long lasting effects.
Light Cycle Oil	: Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
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

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1268, PETROLEUM DISTILLATES, N.O.S., 3, III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

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UN1268, PETROLEUM DISTILLATES, N.O.S., (DECANT (CLARIFIED) OILS, LIGHT CYCLE OIL), 3, III, (43 °C), MARINE POLLUTANT, (DECANT (CLARIFIED) OILS, LIGHT CYCLE OIL)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS, (DECANT (CLARIFIED) OILS, LIGHT CYCLE OIL)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, III, ENVIRONMENTALLY HAZARDOUS, (DECANT (CLARIFIED) OILS, LIGHT CYCLE OIL)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)

UN1268, PETROLEUM DISTILLATES, N.O.S., 3, III, ENVIRONMENTALLY HAZARDOUS, (DECANT (CLARIFIED) OILS, LIGHT CYCLE OIL)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information**Notification status**

Europe REACH	:	Not in compliance with the inventory
United States of America (USA) TSCA	:	On TSCA Inventory
Canada DSL	:	All components of this product are on the Canadian DSL
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	Not in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

Other regulations

: Law on Prevention and Control of Environment Pollution by Solid Waste, Regulation on the Safety Management of Hazardous Chemicals, Provisions on the Safe Use of Chemicals at Workplace, GB13690: General rule for classification and hazard communication of chemicals, Fire Protection Law

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SECTION 16: Other information**Further information**

Legacy SDS Number : 59730

Local emergency contact number: 0532-83889090

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	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%		