Acetylene

Version 1.2 Revision Date 2016-08-02

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

Product information

Product Name : Acetylene
Material : 1091007, 1036981

Use : Chemical intermediate

Company : Chevron Phillips Chemical Company LP
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: +800 CHEMCALL (+800 2436 2255) China:+86-21-22157316
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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
This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Emergency Overview

Danger

Form: Compressed gas **Physical state**: Gaseous **Color**: Colorless **Odor**: garlic-like

OSHA Hazards : Flammable Gas, Compressed Gas

Classification

: Flammable gases, Category 1
Gases under pressure, Compressed gas

Labeling

Symbol(s) :

Signal Word : Danger

Hazard Statements : H220: Extremely flammable gas.
H280: Contains gas under pressure; may explode if heated.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Response:
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.
Storage:
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Carcinogenicity:

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

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

SECTION 3: Composition/information on ingredients

Synonyms : Ethyne

Molecular formula : C2H2

Component	CAS-No.	Weight %
Acetylene	74-86-2	97 - 100
Dimethylformamide	68-12-2	0 - 3
Ethane	74-84-0	0 - 2.5
Ethylene	74-85-1	0 - 2.5
Propylene	115-07-1	0 - 2

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance.

If inhaled : If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

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.

SECTION 5: Firefighting measures

Flash point	:	-17.7 °C (0.1 °F) Method: closed cup
Autoignition temperature	:	305 °C (581 °F)
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	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. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Carbon. Carbon oxides.

SECTION 6: Accidental release measures

Personal precautions	:	Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors 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.

SECTION 7: Handling and storage

Handling

Advice on safe handling	:	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.

Container may be opened only under exhaust ventilation hood. Open drum carefully as content may be under pressure. 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. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : Prevent unauthorized access. No smoking. Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

US

Ingredients	Basis	Value	Control parameters	Note
Acetylene	NIOSH REL	C	2,500 ppm, 2,662 mg/m3	
Dimethylformamide	ACGIH	TWA	10 ppm,	liver dam, BEI, A4, Skin,
	OSHA Z-1	TWA	10 ppm, 30 mg/m3	X, (b),
	OSHA Z-1-A	TWA	10 ppm, 30 mg/m3	X,
Ethylene	ACGIH	TWA	200 ppm,	asphyxia, A4,
Propylene	ACGIH	TWA	500 ppm,	URT irr, asphyxia, A4,

(b) The value in mg/m3 is approximate.
A4 Not classifiable as a human carcinogen
asphyxia Asphyxia
BEI Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
liver dam Liver damage
Skin Danger of cutaneous absorption
URT irr Upper Respiratory Tract irritation
X Skin notation

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Dimethylformamide	68-12-2	Immediately Dangerous to Life or Health Concentration Value 500 ppm	1995-03-01

Biological exposure indices

US

Substance name	CAS-No.	Control parameters	Sampling time	Update
Dimethylformamide	68-12-2	N-Methylformamide: 15 mg/l (Urine)	End of shift (As soon as possible after exposure ceases)	2007-01-01
		N-Acetyl-S-(N-methylcarbamoyl) cysteine: 40 mg/l (Urine)	Prior to last shift of workweek	2007-01-01

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits.

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:. 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. Safety glasses.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
Hygiene measures	:	Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form	:	Compressed gas
Physical state	:	Gaseous
Color	:	Colorless
Odor	:	garlic-like

Safety data

Flash point	:	-17.7 °C (0.1 °F) Method: closed cup
Lower explosion limit	:	2.5 %(V)
Upper explosion limit	:	> 99 %(V)
Oxidizing properties	:	No

Autoignition temperature	:	305 °C (581 °F)
Molecular formula	:	C2H2
Molecular weight	:	26.04 g/mol
pH	:	Not applicable
Pour point	:	No data available
Freezing point		-80.6 °C (-113.1 °F)
Boiling point/boiling range	:	-84 °C (-119 °F)
Vapor pressure	:	649.00 PSI at 21 °C (70 °F)
Relative density	:	No data available
Density	:	0.62 G/ML
Water solubility	:	Soluble in acetone, benzene, chloroform and many organic solvents; slightly soluble in water and alcohol.
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	0.91 (Air = 1.0)
Evaporation rate	:	No data available
Percent volatile	:	> 99 %

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

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 Carbon oxides

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

SECTION 11: Toxicological information

Acetylene
Acute oral toxicity : Negligible or unlikely exposure pathways

Acute inhalation toxicity

Acetylene	: LC50: > 160.5 mg/l Exposure time: 4 h Species: Rat Sex: male Test atmosphere: vapor
Dimethylformamide	: > 5.85 mg/l Exposure time: 4 h Species: Rat Sex: male and female Test atmosphere: vapor Method: OECD Test Guideline 403
Ethylene	LC50: > 65.4 mg/l Exposure time: 4 h Species: Rat Sex: male Test atmosphere: gas
Propylene	LC50: > 86 mg/l Exposure time: 4 h Species: Rat Test atmosphere: gas Test substance: yes

Acetylene
Acute dermal toxicity : Negligible or unlikely exposure pathways

Skin irritation

Acetylene	: No skin irritation
Dimethylformamide	No skin irritation
Ethane	No skin irritation Contact with liquid or refrigerated gas can cause cold burns and frostbite.
Propylene	No adverse effects expected.

Eye irritation

Acetylene	:	No eye irritation
Dimethylformamide		irritating
Ethane		No eye irritation Contact with liquid or refrigerated gas can cause cold burns and frostbite.
Propylene		No adverse effects expected.

Sensitization

Acetylene Dimethylformamide	:	No adverse effects expected. Did not cause sensitization on laboratory animals.
Propylene		No data available.

Repeated dose toxicity

Ethane	:	Species: Rat, Male and female Sex: Male and female Application Route: Inhalation Dose: 0, 1600, 5000, 16000 ppm Exposure time: 6 weeks Number of exposures: 6 hours/day, 7 days/week NOEL: 16000 ppm Test substance: yes Method: OECD Guideline 422
Propylene		Species: Rat, Male and female Sex: Male and female Application Route: Inhalation Dose: 625,1250,2500,5000, 10000 ppm Exposure time: 14 wk Number of exposures: 6 Hr/d, 5 d/wk NOEL: 10000 ppm No adverse effect has been observed in chronic toxicity tests.

Species: Mouse, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 625,1250,2500,5000, 10000 ppm
Exposure time: 14 wk
Number of exposures: 6 Hr/d, 5 d/wk
NOEL: 10000 ppm
No adverse effect has been observed in chronic toxicity tests.

Species: Rat, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 0, 5000, 10000 ppm
Exposure time: 103 wk
Number of exposures: 6 Hr/d, 5 d/wk
Lowest observable effect level: 5000 ppm

Species: Mouse, Male and female
Sex: Male and female
Application Route: Inhalation
Dose: 0, 5000, 10000 ppm
Exposure time: 103 wk
Number of exposures: 6 Hr/d, 5 d/wk
Lowest observable effect level: 5000 ppm

Carcinogenicity

Ethylene : Species: Rat
Dose: 0. 300, 1000, 3000 ppm
Exposure time: 2 yrs
Number of exposures: 6 h/d, 5 d/wk
Remarks: no increase incidence of tumors

Propylene Species: Rat
Dose: 0, 5000, 10000 ppm
Exposure time: 103 wks
Number of exposures: 6 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Species: Mouse
Dose: 0, 5000, 10000 ppm
Exposure time: 103 wks
Number of exposures: 6 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Reproductive toxicity

Ethane : Species: Rat
Sex: male and female
Application Route: Inhalation
Dose: 0, 1600, 5000, 16000 ppm
Exposure time: 6 weeks
Number of exposures: 6 hours/day, 7 days/week
Test period: 6 weeks
Test substance: yes
Method: OECD Guideline 422
NOAEL Parent: 16000 ppm
NOAEL F1: 16000 ppm
no abnormalities observed

Ethylene	Species: Rat Application Route: Inhalation Dose: 0. 200, 1000, 5000 ppm Number of exposures: 6 h/d NOAEL Parent: 5000 ppm NOAEL F1: 5000 ppm no abnormalities observed
Propylene	Species: Rat Sex: male and female Application Route: Inhalation Dose: 0, 5000, 10000 ppm Number of exposures: 6 hrs/d, 5 d/wk Test period: 103 wks NOAEL Parent: 10000 ppm Species: Mouse Sex: male and female Application Route: Inhalation Dose: 0, 5000, 10000 ppm Number of exposures: 6 hrs/d, 5 d/wk Test period: 103 wks NOAEL Parent: 10000 ppm

Developmental Toxicity

Ethylene	:	Species: Rat Application Route: Inhalation Dose: 0. 200, 1000, 5000 ppm Number of exposures: 6 h/d NOAEL Teratogenicity: 5000 ppm NOAEL Maternal: 5000 ppm No toxicity to reproduction Animal testing did not show any effects on fertility.
Propylene		Species: Rat Application Route: Inhalation Dose: 0, 200, 1000, 10000 ppm Number of exposures: 6 hrs/d Test period: 14 d Method: OECD Guideline 414 NOAEL Teratogenicity: 10000 ppm NOAEL Maternal: 10000 pmm

Acetylene
Aspiration toxicity : No aspiration toxicity classification.

CMR effects

Propylene	:	Carcinogenicity: Animal testing did not show any carcinogenic effects. Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Teratogenicity: Animal testing did not show any effects on fetal development. Reproductive toxicity: Animal testing did not show any effects on fertility.

Acetylene
Further information : No data available.

SECTION 12: Ecological information

Toxicity to fish

Dimethylformamide : LC50: 7,100 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

Toxicity to daphnia and other aquatic invertebrates

Dimethylformamide : EC50: 13,100 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

Toxicity to algae

Dimethylformamide : EC50: > 1,000 mg/l
Exposure time: 96 h
Species: Desmodesmus subspicatus (Scenedesmus subspicatus)

Elimination information (persistence and degradability)

Bioaccumulation

Ethane : This material is not expected to bioaccumulate.
This substance is not considered to be persistent, bioaccumulating and toxic (PBT).
This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Biodegradability : This material is volatile and is expected to partition to air.

Ecotoxicology Assessment

Results of PBT assessment
Acetylene : Non-classified vPvB substance, Non-classified PBT substance

Additional ecological information : This material is not expected to be harmful to aquatic organisms.

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	:	Do not dispose of waste into sewer. 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)
UN1001, ACETYLENE, DISSOLVED, 2.1
Acetylene dissolved is authorized for transport, but acetylene liquefied is forbidden for transport.

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1001, ACETYLENE, DISSOLVED, 2.1, (-17.7 °C)
Acetylene dissolved is authorized for transport, but acetylene liquefied is forbidden for transport.

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN1001, ACETYLENE, DISSOLVED, 2.1
Acetylene dissolved is authorized for transport, but acetylene liquefied is forbidden for transport.

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN1001, ACETYLENE, DISSOLVED, 2.1, (B/D)
Acetylene dissolved is authorized for transport, but acetylene liquefied is forbidden for transport.

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1001, ACETYLENE, DISSOLVED, 2.1
Acetylene dissolved is authorized for transport, but acetylene liquefied is forbidden for transport.

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1001, ACETYLENE, DISSOLVED, 2.1
Acetylene dissolved is authorized for transport, but acetylene liquefied is forbidden for transport.

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

SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards : Fire Hazard
Sudden Release of Pressure Hazard

EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO – KNOW

CERCLA Reportable Quantity : 3333 lbs

Dimethylformamide

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

SARA 302 Threshold Planning Quantity : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

SARA 313 Ingredients : The following components are subject to reporting levels established by SARA Title III, Section 313:

: Dimethylformamide - 68-12-2
Ethylene - 74-85-1
Propylene - 115-07-1

Clean Air Act

Ozone-Depletion Potential : 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).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):
: Dimethylformamide - 68-12-2

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

: Acetylene - 74-86-2
Ethane - 74-84-0
Ethylene - 74-85-1
Propylene - 115-07-1

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60):

: Acetylene - 74-86-2
Dimethylformamide - 68-12-2
Ethylene - 74-85-1
Propylene - 115-07-1

US State Regulations

Pennsylvania Right To Know

: Acetylene - 74-86-2
Dimethylformamide - 68-12-2
Ethane - 74-84-0
Ethylene - 74-85-1
Propylene - 115-07-1

New Jersey Right To Know

: Acetylene - 74-86-2
Dimethylformamide - 68-12-2
Ethane - 74-84-0
Ethylene - 74-85-1
Propylene - 115-07-1

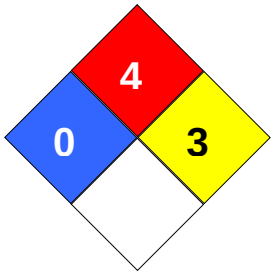
California Prop. 65 Ingredients : This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

Europe REACH	:	Not in compliance with the inventory
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America 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	:	On the inventory, or 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	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 0
Fire Hazard: 4
Reactivity Hazard: 3



Further information

Legacy SDS Number : 907

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	TWA	Time Weighted Average

	Substances in China		
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%		