

**Crude Hydrogen**

Version 2.1

Revision Date 2011-08-24

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product information**

Trade name : Crude Hydrogen
Material : 1015516

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

Local : Chevron Phillips Chemicals International N.V.
Brusselsesteenweg 355
B-3090 Overijse
Belgium

MSDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:msds@cpchem.com

Emergency telephone:**Health:**

866.442.9628 (North America)
1.832.813.4984 (International)

Transport:

North America: CHEMTREC 800.424.9300 or 703.527.3887
Asia: +800 CHEMCALL (+800 2436 2255) China: 0532.8388.9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Chemcare Asia: Tel: +65 6848 9048 - Mob: +65 8382 9188 - Fax: +65 6848
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 : MSDS@CPChem.com
Website : www.CPChem.com

2. HAZARDS IDENTIFICATION**Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Flammable gases, Category 1	H220: Extremely flammable gas.
Gases under pressure, Compressed gas	H280: Contains gas under pressure; may explode if heated.
Reproductive toxicity, Category 1A	H360: May damage fertility or the unborn child.

Classification (67/548/EEC, 1999/45/EC)

Extremely flammable	R12: Extremely flammable.
Carcinogenic Category 1	R45: May cause cancer.
Toxic to Reproduction Category 1	R61: May cause harm to the unborn child.

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Mutagenic Category 2
Harmful

R46: May cause heritable genetic damage.
R20: Harmful by inhalation.
R48/20: Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Label elements**Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms

:



Signal Word

: Danger

Hazard Statements

: H220
H280

Extremely flammable gas.
Contains gas under pressure; may explode if heated.

H360

May damage fertility or the unborn child.

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.

P281

Use personal protective equipment as required.

Response:

P308 + P313

IF exposed or concerned: Get medical advice/ attention.

Storage:

P410 + P403

Protect from sunlight. Store in a well-ventilated place.

Hazardous ingredients which must be listed on the label:

- 630-08-0 Carbon Monoxide

Additional Labeling:

Restricted to professional users.

Other hazards

Flammable.
Extremely flammable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms

: None established

Molecular formula

: UVCB

Mixtures**Hazardous ingredients**

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Chemical Name	CAS-No. EINECS-No.	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
Fuel Gas	68476-26-6 270-667-2	F+; R12 Carc.Cat.1; R45 Mut.Cat.2; R46	Flam. Gas 1; H220 Press. Gas H280	100
Ethylene	74-85-1 200-815-3	F+; R12 R67	Flam. Gas 1; H220	12
Methane	74-82-8 200-812-7	F+; R12	Flam. Gas 1; H220 Press. Gas H280	68
Ethane	74-84-0 200-814-8	F+; R12	Flam. Gas 1; H220 Press. Gas H280	3
Carbon Monoxide	630-08-0 211-128-3	F+; R12 Repr.Cat.1; R61 T; R23-R48/23	Acute Tox. 3; H331 Flam. Gas 1; H220 Repr. 1; H360 Press. Gas STOT RE 1; H372	0,6

Contains no hazardous ingredients according to GHS. :

Remarks : Contains no hazardous ingredients according to GHS.

For the full text of the R-phrases mentioned in this Section, see Section 16.

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

General advice : Consult a physician.

In case of skin contact : Wash off with soap and water.

5. FIRE-FIGHTING MEASURES

Flash point : No data available

Autoignition temperature : 585 °C (1.085 °F)

Specific hazards during fire fighting : Do not use a solid water stream as it may scatter and spread fire. Cool closed containers exposed to fire with water spray.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.

Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Fire and explosion protection : Keep away from heat and sources of ignition.

Hazardous decomposition : No data available.

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6. ACCIDENTAL RELEASE MEASURES

- Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.
- Environmental precautions : Local authorities should be advised if significant spillages cannot be contained.
- Methods for cleaning up : Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly while observing environmental regulations.

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. Open drum carefully as content may be under pressure. Keep away from heat.

- Advice on protection against fire and explosion : Keep away from heat and sources of ignition.

Storage**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Ingredients with workplace control parameters****Chevron Phillips Chemical Company LP**

Ingredients	Basis	Value	Control parameters	Note
Ethylene	Manufacturer	TWA	0,1 g/cm ³	

LT

Komponentai	Pagrindas, bazė	Vertė	Kontrolės parametrai	Pastaba
Ethylene	LT OEL	IPRD	100 mg/m ³	
Carbon Monoxide	LT OEL	IPRD	35 ppm, 40 mg/m ³	1 / 2,
	LT OEL	TPRD	100 ppm, 120 mg/m ³	1 / 2,
	LT OEL	IPRD	20 ppm, 25 mg/m ³	1 / 2,

1 / 2 Specialieji azoto dioksido ir anglies monoksido RD pateikti, atsižvelgiant į variklių išmetamosiose dujose esančių medžiagų, tarp jų ir kancerogenų, bendrą poveikį. Tokiu atveju šios medžiagos naudojamos kaip indikatoriai. Poveikis turi būti priimtinas abiejų reikšmių atveju: anglies monoksido - išmetamųjų dujų iš benzino ir dujas naudojančių variklių, azoto dioksido - išmetamųjų dūmų iš dyzelinių kūrų naudojančių variklių. Anglies monoksido ir azoto dioksido suminio poveikio skaičiuoti nereikia.

LV

Sastāvdaļas	Bāze	Vērtība	Pārvaldības parametri	Piezīme
Ethylene	LV OEL	AER 8 st	100 mg/m ³	
Carbon Monoxide	LV OEL	AER 8 st	20 mg/m ³	

NL

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Carbon Monoxide	NL MAC	TGG-8 uur	29 mg/m ³	

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
Carbon Monoxide	PL NDS	NDS	23 mg/m ³	
	PL NDS	NDSch	117 mg/m ³	

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PT

Componentes	Bases	Valor	Parâmetros de controle	Nota
Methane	PT OEL	VLE-MP	1.000 ppm,	
Ethylene	PT OEL	VLE-MP	200 ppm,	A4,
Ethane	PT OEL	VLE-MP	1.000 ppm,	
Carbon Monoxide	PT OEL	VLE-MP	25 ppm,	IBE,

A4 Agentes não classificáveis como carcinogênicos no Honem

IBE Identifica substâncias para as quais existem índices de exposição biológicos. Estes podem ser de dois tipos: IBE A referentes a pesticidas inibidores da acetilcolinesterase e IBE M indutores de metahemoglobina.

SE

Beståndsdelar	Grundval	Värde	Kontrollparametrar	Anmärkning
Ethylene	SE AFS	NGV	250 ppm, 330 mg/m3	
	SE AFS	KTV	1.000 ppm, 1.200 mg/m3	
Carbon Monoxide	SE AFS	NGV	35 ppm, 40 mg/m3	R,
	SE AFS	KTV	100 ppm, 120 mg/m3	R,

R Ämnet är reproduktionsstörande.

SI

Komponente	Osnova	Vrednost	Parametri nadzora	Pripomba
Carbon Monoxide	SI OEL	MV	30 ppm, 35 mg/m3	BAT, RE1,

BAT Biološka mejna vrednost - določena je biološka mejna vrednost, ki pomeni opozorilno raven nevarne kemične snovi in njenih metabolitov v tkivih, telesnih tekočinah ali izdihanem zraku, ne glede na to, ali je nevarna kemična snov vnesena v organizem z vdihavanjem, zaužitjem ali skozi kožo

RE1 Teratogeno RE1 - lahko škoduje nerojenemu otroku. Številke 1, 2 in 3 pomenijo skupino rakotvornosti ali mutagenosti po EU razvrstitvi rakotvornih ali mutagenih snovi. Rakotvorne ali mutagene snovi se v EU razvršča v posamezne skupine, glede na izpolnjevanje kriterijev, določenih v EU direktivi 67/548/EEC.

SK

Súčasť	Podstata	Hodnota	Kontrolné parametre	Poznámka
Carbon Monoxide	SK OEL	NPEL	30 ppm, 35 mg/m3	Kategória II,
	SK OEL	CEIL	35 mg/m3	Kategória II,

Kategória II Faktory so systémovými účinkami. Trvanie piku: 15 minút priemerná hodnota. Frekvencia za zmenu: 4. Interval medzi pikmi: 1hodina. Kategória II znamená, že NPEL môže byť krátkodobo prekročený maximálne 2- 8 krát za zmenu. Maximálne trvanie priemernej pikovej expozície nesmie presiahnuť 15 minút 4-krát za zmenu v intervale jednej hodiny medzi pikmi, pričom priemerný NPEL za 8-hodinovú zmenu musí byť dodržaný.

AT

Inhaltsstoffe	Basis	Wert	Zu überwachende Parameter	Bemerkung
Carbon Monoxide	AT OEL	TMW	30 ppm, 33 mg/m3	
	AT OEL	KZW	60 ppm, 66 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
Methane	BE OEL	TGG 8 hr	1.000 ppm,	
Ethylene	BE OEL	TGG 8 hr	200 ppm, 233 mg/m3	A,
Ethane	BE OEL	TGG 8 hr	1.000 ppm,	
Carbon Monoxide	BE OEL	TGG 8 hr	25 ppm, 29 mg/m3	

A Deze stoffen geven gassen of dampen vrij die op zich geen fysiologische werking hebben, maar die het zuurstofgehalte in de lucht kunnen verlagen. Wanneer het zuurstofgehalte daalt onder de 17-18 % (vol/vol), veroorzaakt het zuurstoftekort verstikking, die zich manifesteert zonder dat er een waarschuwing aan voorafgaat.

CZ

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
Carbon Monoxide	CZ OEL	PEL	30 mg/m3	P,
	CZ OEL	NPK-P	150 mg/m3	P,

P U látky nelze vyloučit závažné pozdní účinky

DE

Inhaltsstoffe	Basis	Wert	Zu überwachende Parameter	Bemerkung
Carbon Monoxide	DE TRGS 900	AGW	30 ppm, 35 mg/m3	DFG, Z,

DFG Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)

Z Ein Risiko der Fruchtschädigung kann auch bei Einhaltung des AGW und des BGW nicht ausgeschlossen werden

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
Carbon Monoxide	DK OEL	GV	25 ppm, 29 mg/m3	

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
Carbon Monoxide	EE OEL	Piirnorm	35 ppm, 40 mg/m3	R, 9,
	EE OEL	Lühiajalise kokkupuute piirnorm	100 ppm, 120 mg/m3	R, 9,
	EE OEL	Piirnorm	20 ppm, 25 mg/m3	R, 9,

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- 9 Lämmastikdioksiidil ja süsinikmonoksiidil on heitgaasides koos kantserogeensete ainetega eraldi määratud piirnormid. Bensiini- ja vedelgaasimootorite heitgaaside indikaator on süsinikmonoksiid, diiselmootoritel lämmastikdioksiid. Nende puhul ei arvestata aditiivset efekti.
- R Reproduktiivset funktsiooni kahjustavad ained

ES

Componentes	Base	Valor	Parámetros de control	Nota
Methane	ES VLA	VLA-ED	1.000 ppm,	
Ethylene	ES VLA	VLA-ED	200 ppm,	
Ethane	ES VLA	VLA-ED	1.000 ppm,	
Carbon Monoxide	ES VLA	VLA-ED	25 ppm, 29 mg/m3	TR1, VLB,

TR1 Sustancia perjudicial para la fertilidad de los seres humanos o produce toxicidad para el desarrollo.

VLB Agente químico que tiene Valor Límite Biológico específico en este documento.

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Nota
Carbon Monoxide	FI OEL	HTP-arvot 8h	30 ppm, 35 mg/m3	
	FI OEL	HTP-arvot 15 min	75 ppm, 87 mg/m3	
	FI OEL	HTP-arvot 8h	50 ppm, 55 mg/m3	2,
	FI OEL	HTP-arvot 15 min	75 ppm, 85 mg/m3	2,

2 Valtioneuvoston päätös räjäytys- ja louhintatyön järjestysohjeista [410/1986]

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
Carbon Monoxide	FR VLE	VME	50 ppm, 55 mg/m3	R1, normal,

normal Valeurs limites indicatives

R1 Substances que l'on sait être toxiques pour la reproduction pour l'homme

GB

Ingredients	Basis	Value	Control parameters	Note
Carbon Monoxide	GB EH40	TWA	30 ppm, 35 mg/m3	
	GB EH40	STEL	200 ppm, 232 mg/m3	

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
Carbon Monoxide	GR OEL	TWA	50 ppm, 55 mg/m3	
	GR OEL	STEL	300 ppm, 330 mg/m3	

HU

Komponensek	Bázis	Érték	Ellenőrzési paraméterek	Megjegyzés
Carbon Monoxide	HU OEL	AK-érték	33 mg/m3	
	HU OEL	CK-érték	66 mg/m3	

IE

Ingredients	Basis	Value	Control parameters	Note
Carbon Monoxide	IE OEL	OELV - 8 hrs (TWA)	20 ppm, 23 mg/m3	Repro 1,
	IE OEL	OELV - 15 min (STEL)	100 ppm, 115 mg/m3	Repro 1,

Repro 1 Substances known to be toxic for reproduction for man (Category 1 reproductive toxins)

Personal protective equipment

Respiratory protection : Self-contained breathing apparatus (SCBA) for use in environments with unknown concentrations or emergency situations.

Eye protection : Safety glasses. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures : Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas.

Protective measures : Wear suitable protective equipment. When using do not eat, drink or smoke.

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9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties****Appearance**

Form	: Compressed gas
Physical state	: Gaseous
Color	: Colorless
Odor	: Odorless

Safety data

Flash point	: No data available
Lower explosion limit	: 4 %(V)
Upper explosion limit	: 75 %(V)
Oxidizing properties	: No
Autoignition temperature	: 585 °C (1.085 °F)
Molecular formula	: UVCB
Molecular Weight	: Not applicable
pH	: Not applicable
Freezing point	: No data available
Pour point	: Not applicable
Boiling point/boiling range	: -253 °C (-423 °F)
Vapor pressure	: 116,17 MMHG at 21,1 °C (70,0 °F)
Relative density	: 0,56, 21,1 °C(70,0 °F)
Water solubility	: Partly soluble
Partition coefficient: n-octanol/water	: No data available
Viscosity, dynamic	: 0,013 cP
Relative vapor density	: 0,5 (Air = 1.0)
Evaporation rate	: Not applicable

10. STABILITY AND REACTIVITY**Possibility of hazardous reactions**

Conditions to avoid	: Extremes of temperature and direct sunlight.
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- Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
- Other data : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

11. TOXICOLOGICAL INFORMATION

- Crude Hydrogen**
Acute oral toxicity : Method: Estimated based on individual component values.
Presumed Not Toxic
- Crude Hydrogen**
Acute inhalation toxicity : Acute toxicity estimate: 301.167 mg/l
Method: Calculation method
- Crude Hydrogen**
Acute dermal toxicity : Method: Estimated based on individual component values.
Presumed Not Toxic
- Crude Hydrogen**
Skin irritation : No skin irritation
- Crude Hydrogen**
Eye irritation : No eye irritation
- Crude Hydrogen**
Sensitization : No adverse effects expected.
- Crude Hydrogen**
Repeated dose toxicity : Method: Estimated based on individual component values.
This information is not available.
- Crude Hydrogen**
Carcinogenicity : Method: Expected to be carcinogenic based on individual component data.
- Crude Hydrogen**
Reproductive toxicity : Test substance: No data available
Method: Estimated based on individual component values.
- Crude Hydrogen**
Teratogenicity : Method: Estimated based on individual component values.
NOAEL Maternal: This information is not available.

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12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Bioaccumulation

Ethane : This material is not expected to bioaccumulate.
This substance is not considered to be persistent,
bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor
very bioaccumulating (vPvB).

Biodegradability : Not applicable

Further information on ecology

Additional ecological information

Ethane : No data available

13. DISPOSAL CONSIDERATIONS

The information in this MSDS 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 : Dispose of wastes in an approved waste disposal facility.

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 MSDS and the bill of lading.

US DOT (United States Department of Transportation)

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IMO / IMDG (International Maritime Dangerous Goods)

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IATA (International Air Transport Association)

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ADR (Agreement on Dangerous Goods by Road (Europe))

UN2034, HYDROGEN AND METHANE MIXTURE, COMPRESSED, 2.1, (B/D)

RID (Regulations concerning the International Transport of Dangerous Goods (Europe))

UN2034, HYDROGEN AND METHANE MIXTURE, COMPRESSED, 2.1 ((13))

ADN (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)

UN2034, HYDROGEN AND METHANE MIXTURE, COMPRESSED, 2.1

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

15. REGULATORY INFORMATION**National legislation**

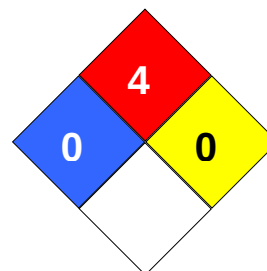
Major Accident Hazard Legislation : 96/82/EC Update: 2003
 Extremely flammable
 8
 Quantity 1: 10 t
 Quantity 2: 50 t

Notification status

Europe REACH	: Not in compliance with the inventory
United States of America US.TSCA	: On the inventory, or in compliance with the inventory
Canada DSL	: On the inventory, or in compliance with the inventory
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	: Not in compliance with the inventory

16. OTHER INFORMATION

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



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Further information

Legacy MSDS Number : 5860

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

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

The information provided in this Material 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%		

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

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R12	Extremely flammable.
R20	Harmful by inhalation.
R23	Toxic by inhalation.
R45	May cause cancer.
R46	May cause heritable genetic damage.
R48/20	Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R48/23	Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R61	May cause harm to the unborn child.
R67	Vapors may cause drowsiness and dizziness.

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

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H331	Toxic if inhaled.
H360	May damage fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.