STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

None reasonably foreseeable.

Decomposition

Decomposition will not occur.

Polymerization

Polymerization can occur. (Not violent or strongly exothermic.) Extended heating at high temperatures (>200 degC).

TOXICOLOGICAL INFORMATION

Animal Data

1,2-Ethanediol:

Oral LD50:	4,000 mg/kg in female rats
Dermal LD50:	>20 mL/kg in rabbits

SIPEG did not produce genetic damage in bacterial cell cultures.

1,2-Ethanediol is a mild skin irritant and mild eye irritant, and is untested for skin sensitization in animals. Repeated exposure by ingestion caused histopathological changes of the kidneys, bone marrow, kidney effects with oxalate crystal deposition, altered hematology, decreased body weight. Long-term exposure caused kidney effects with oxalate crystal deposition, histopathological changes of the kidneys, liver, blood vessels, testes, sperm, decreased body weight. No deaths occurred in animals exposed to saturated vapors of the compound. Repeated exposure by inhalation caused histopathological changes of the liver, lungs, eye

irritation, clouding of the eye (corneal opacity). In animal testing this material has not caused carcinogenicity. Reproductive data on adult animals show interference with reproduction only at levels which produce other toxic effects in the adult animal. Tests have shown this material to cause developmental toxicity in animals. This material has not produced genetic damage in bacterial cultures. There are reports indicating that this material does not produce genetic damage in some animal or mammalian cell culture tests; however, there are reports in the literature that suggest positive results.

ECOLOGICAL INFORMATION

Ecotoxicological Information

Ethylene Glycol:
96 hour LC50, Fathead minnows: 49,000 mg/L

DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO/IATA : Not Regulated in Containers with less than 5,000 lbs. Ethylene Glycol

If greater than 5,000 lbs. Ethylene Glycol, use:

DOT/IMO/IATA
Proper Shipping Name : Environmentally Hazardous Substance, Liquid, N.O.S.
(Contains Ethylene Glycol)
Hazard Class : 9

UN Number	: 3082
Packing Group	: III
Label	: Class 9
Reportable Quantity	: 5,000 lbs. Ethylene Glycol

Shipping Information -- Canada

This material is Not Regulated.

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Listed.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute	: Yes
Chronic	: Yes
Fire	: No
Reactivity	: No
Pressure	: No

Canadian Regulations

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Not listed on the Canadian Domestic Substances List (DSL).

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating

Health	: 2
Flammability	: 1
Reactivity	: 0

Personal Protection rating to be supplied by user depending on use conditions.

Additional Information

This product contains polymer-grade ethylene glycol.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS

CHEMICALS
DuPont Canada Inc.
7070 Mississauga Rd.
Mississauga, Ontario, L5M 2H3
(905) 821-5369.

End of MSDS

FREON 502

* *
* M S D S *
* *
* Canadian Centre for Occupational Health and Safety *
* * * * * * * * * * * * Issue : 2001-1 (February, 2001) *

*** IDENTIFICATION ***

MSDS RECORD NUMBER : 2438327
PRODUCT NAME(S) : CHLORODIFLUOROMETHANE &
CHLOROPENTAFLUOROETHANE MIXTURE
"FREON" 502
PRODUCT IDENTIFICATION : MSDS NUMBER: CEF00502
DATE OF MSDS : 1999-05-20
CURRENCY NOTE : This MSDS was provided to CCOHS in
electronic form on 2000-10-30

*** MANUFACTURER INFORMATION ***

MANUFACTURER : DuPont Canada, Inc
ADDRESS : Post Office Box 2200
Streetsville
Mississauga Ontario
Canada L5M 2H3
Telephone: 800-387-2122 (Product
Information)
EMERGENCY TELEPHONE NO. : 613-348-3616 (Transport, 24 HOURS)
613-348-3616 (Medical, 24 HOURS)

*** SUPPLIER/DISTRIBUTOR INFORMATION ***

SUPPLIER/DISTRIBUTOR : DuPont Canada, Inc
ADDRESS : Post Office Box 2200
Streetsville
Mississauga Ontario

Canada L5M 2H3
Telephone: 800-387-2122 (Product
Information)
EMERGENCY TELEPHONE NO. : 613-348-3616 (Transport, 24 HOURS)
613-348-3616 (Medical, 24 HOURS)

FREON 502

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"FREON" is a registered trademark of DuPont.

Corporate MSDS Number : DU001047
Formula : $CHClF_2/CClF_2CF_3$
(AZEOTROPE)

Product Use

Refrigerant

Tradenames and Synonyms

CHLORODIFLUOROMETHANE & CHLOROPENTAFLUOROETHANE MIXTURE

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont Canada, Inc.
P.O. Box 2200
Streetsville
Mississauga, Ontario L5M 2H3

PHONE NUMBERS
Product Information : 1-800-387-2122
Transport Emergency : 1-613-348-3616 (24 HOURS)
Medical Emergency : 1-613-348-3616 (24 HOURS)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
*ETHANE, CHLOROPENTAFLUORO ("FREON" 115)	76-15-3	51.2 WT%
*METHANE, CHLORODIFLUORO ("FREON" 22)	75-45-6	48.8 WT%

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse or deliberate inhalation can cause death without warning. Vapor reduces oxygen available for breathing and is heavier than air. Liquid contact can cause frostbite.

HUMAN HEALTH EFFECTS:

Overexposure to the vapors by inhalation may include temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness. Higher inhalation overexposures to the vapors may cause temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. Fatality from gross overexposure may occur. Skin contact with the liquid may cause frostbite.

Individuals with preexisting diseases of the central nervous system, cardiovascular system, lungs or kidneys may have increased susceptibility to the toxicity of excessive exposures.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

FIRST AID MEASURES

First Aid

INHALATION
If large amounts are inhaled, immediately remove to fresh air. Keep persons calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT
In case of skin contact, flush with water for 15 minutes. Treat for frostbite if necessary by gently warming affected area.

EYE CONTACT
In case of eye contact, immediately flush eyes with plenty of water for 15 minutes. Call a physician.

INGESTION
Ingestion is not considered a potential route of exposure.

Notes to Physicians

Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution only in situations of emergency life support.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point	: Will not burn
Flammable limits in Air, % by Volume	
LEL	: Not applicable
UEL	: Not applicable
Autoignition	: 704 C (1299 F)

Fire and Explosion Hazards:

Cylinders are equipped with temperature and pressure relief devices but still may rupture under fire conditions. Decomposition may occur.

Extinguishing Media

As appropriate for combustibles in area.

Fire Fighting Instructions

Keep containers cool with water spray. Self-contained breathing apparatus (SCBA) is required if cylinders rupture or release under fire conditions.

ACCIDENTAL RELEASE MEASURES

Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures

Ventilate area - especially low places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) for large spills. Comply with Federal, State, and local regulations for reporting releases.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors. Avoid liquid contact with skin or eyes. Use with sufficient ventilation to keep employee exposure below recommended limits.

Storage

Clean, dry area. Do not heat above 52 deg C (125 deg F).

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use with sufficient ventilation to keep employee exposure below recommended exposure limits. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

Personal Protective Equipment

Impervious gloves and chemical splash goggles should be used if contact is possible. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a spill or release occurs.

Exposure Guidelines

Applicable Exposure Limits

ETHANE, CHLOROPENTAFLUORO

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: 1,000 ppm, 6,320 mg/m3, 8 Hr. TWA
AEL *	(DuPont)	: None Established

METHANE, CHLORODIFLUORO

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: 1,000 ppm, 3,540 mg/m3, 8 Hr. TWA, A4
AEL *	(DuPont)	: None Established

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Boiling Point	: -45.4 C (-49.7 F)
Vapor Pressure	: 169 psia at 25 deg C (77 deg F)
Vapor Density	: 3.92 at 25 deg C (77 deg F) (Air= 1)
% Volatiles	: 100 WT%
Evaporation Rate	: >1 (CCl4 = 1)
Solubility in Water	: 0.15 WT% @ 25 C (77 F)
pH	: Neutral
Odor	: Slight ethereal

Form : Liquified gas

Color	: Clear, colorless
Density	: 1.22 g/cc at 25 deg C (77 deg F) - Liquid

STABILITY AND REACTIVITY

Chemical Stability

Material is stable. However, avoid open flames and high temperatures.

Incompatibility with Other Materials

Incompatible with alkali or alkaline earth metals- powdered

Al, Zn, Be, etc.

Polymerization

Polymerization will not occur.

Other Hazards

Decomposition : Decomposition products are hazardous. "FREON" 502 Refrigerant can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

TOXICOLOGICAL INFORMATION

Animal Data

"FREON" 115

Inhalation 4-hour LC50: >800,000 ppm in rats
Oral ALD : >1200 mg/kg in rats

The effects of a single inhalation exposure at high concentrations include rapid respiration and inactivity. Repeated exposure at lower levels produced no signs of toxicity. Exposure to 150,000 ppm with simultaneous epinephrine challenge produced cardiac arrhythmia in dogs. The effects of repeated ingestion include mild diarrhea, salivation and increased activity.

No animal test reports are available to define carcinogenic developmental or reproductive hazards. The compound does not produce genetic damage in bacterial cell cultures but has not been tested in animals.

"FREON" 22

Inhalation 4-hour LC50: 220,000 ppm in rats

The compound is a skin irritant and a slight eye irritant, but is not a skin sensitizer in animals.

Effects from single high exposures include central nervous system depression, anesthesia, rapid breathing, lung congestion and microscopic liver changes. Cardiac sensitization occurred in dogs at 50,000 ppm or greater from the action of exogenous epinephrine.

No toxic effects or abnormal histopathological observations occurred in rats repeatedly exposed to concentrations ranging from 10,000 to 50,000 ppm (v/v). Long-term exposures to 50,000 ppm (v/v) of vapors produced organ weight increases and a decrease in body weight gain, but no increased mortality or adverse hematological effects.

In chronic inhalation studies, HCFC-22, at a concentration of 50,000 ppm (v/v), produced a small, but statistically significant increase of late-occurring tumors involving salivary glands in male rats, but not female rats or male or female mice. In the same studies, no increased incidence of tumors was seen in either species at concentrations of 10,000 ppm or 1000 ppm (v/v).

Long-term administration in corn oil produced no effects on body weight or mortality.

HCFC-22 was mutagenic in some strains of bacteria in bacterial cell cultures, but not mammalian cell cultures or animals. It did not cause heritable genetic damage in mammals.

A slight, but significant increase in developmental toxicity was observed at high concentrations (50,000 ppm) of HCFC-22, a concentration which also produced toxic effects in the adult animal. Based on these findings, and other negative developmental studies, HCFC-22 is not considered a unique hazard to the conceptus. Studies of the effects of HCFC-22 on male reproductive performance have been negative. Specific studies to evaluate the effect on female reproductive performance have not been conducted, however, limited information obtained from studies on developmental toxicity do not indicate adverse effects on female reproductive performance at concentrations up to 50,000 ppm.

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity:

"Freon" 22
48 hour EC50 - Daphnia magna: 433 mg/L

DISPOSAL CONSIDERATIONS

Waste Disposal

Comply with Federal, State, and local regulations. Remove to a permitted waste disposal facility or reclaim by distillation.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO

Proper Shipping Name	: CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUOROETHANE MIXTURE
Hazard Class	: 2.2
UN No.	: 1973
DOT/IMO Label	: NONFLAMMABLE GAS

Shipping Containers

Cylinders
Ton Tanks

Shipping Information -- Canada

TDG

Proper Shipping Name	: CHLORODIFLUOROMETHANE and CHLOROPENTAFLUOROETHANE Mixture
UN #	: 1973
TDG Class	: 2.2

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status	: Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : Yes

HAZARDOUS CHEMICAL LISTS

SARA Extremely Hazardous Substance: No
CERCLA Hazardous Substance : No
SARA Toxic Chemical - See Components Section

Canadian Regulations

CEPA Status : DSL: REPORTED/INCLUDED.

WHMIS Classification:

CLASS A Compressed Gas

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating
Health : 1
Flammability : 0
Reactivity : 1

Personal Protection rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : FLUOROPRODUCTS
Address : DuPont Canada Inc.
Box 2200, Streetsville,
Mississauga, Ontarion, L5M 2H3

Telephone : (905)821-5935

# Indicates updated section.

End of MSDS

FREON

M S D S

Canadian Centre for Occupational Health and Safety

Issue : 2001-1 (February, 2001)

*** IDENTIFICATION ***

MSDS RECORD NUMBER : 1185887
PRODUCT NAME(S) : Freon 12, R 12
PRODUCT IDENTIFICATION : CAS No.: 75-71-8
Form No. F-85312-4
DATE OF MSDS : 1995-05-19

*** MANUFACTURER INFORMATION ***

MANUFACTURER : ANSUL INCORPORATED
ADDRESS : One Stanton Street
Marinette Wisconsin
U.S.A. 54143-2542
Telephone: 715-735-7411 (Other Information Calls)
EMERGENCY TELEPHONE NO. : 800-424-9300 (CHEMTREC)

FREON 12, R 12
QUICK IDENTIFIER (In Plant Common Name)

Prepared By: Safety and Health Department
Date Prepared: May 19, 1995

SECTION 1 - IDENTITY

Common Name: (used on label) Freon 12, R 12
(Trade Name and Synonyms)
CAS No.: 75-71-8
Chemical Name: Dichlorodifluoromethane
Chemical Family: Halogenated Methane
Formula: CCl2F

SECTION 2 - INGREDIENTS

PART A - HAZARDOUS INGREDIENTS

Principal Hazardous Component(s) (chemical and common name(s)):	Wt. %	CAS No.
Dichlorodifluoromethane		75-71-8
ACGIH TLV: 1,000 ppm Acute Toxicity Data: LC50(rat) 800,000 ppm/30 min.		

PART B - OTHER INGREDIENTS

Other Component(s) (chemical and common name(s)):	Wt. %	CAS No.
None		N/A
Acute Toxicity Data: N/A		

SECTION 3 - PHYSICAL AND CHEMICAL CHARACTERISTICS

(Fire and Explosion Data)

Boiling Point: -21.6 deg F
Specific Gravity (H2O=1): 1.33
Vapor Pressure (mm Hg): 70.1 psi @ 70 deg F
Percent Volatile by Volume (%): 100
Vapor Density (Air = 1): 4.3
Evaporation Rate (= 1): N/A Gas at room temperature
Solubility in Water: Negligible
Reactivity in Water: Unreactive
Appearance and Odor: Colorless gas, sweet odor.

Flash Point: None
Flammable Limits in Air % by Volume: N/A
Extinguisher Media: N/A
Auto-Ignition Temperature: N/A

Special Fire Fighting Procedures:	Use water to cool fire-exposed cylinders or other containers. Self-contained breathing apparatus with full facepiece and protective clothing when re-entering unventilated fire areas where product has been used.
Unusual Fire and Explosion Hazards:	Containers are equipped with pressure and temperature relief devices, but rupture may occur under fire conditions and toxic decomposition by-products may be formed if used in fires over 900 deg F.

SECTION 4 - PHYSICAL HAZARDS

Stability:	Unstable [ ]	Conditions to Avoid:	Can be decomposed under fire conditions above 900 deg F.
	Stable [X]		

Incompatibility (Materials to Avoid): Active metals and fires involving metal hydrides.

Hazardous Decomposition Products: Thermal decomposition at temperatures above 900 deg F forming hydrochloric and hydrofluoric acids. These by-products have a sharp irritating odor. They are dangerous even in low concentrations, and in sufficient concentrations can result in personal injury or death.

Hazardous Polymerization:	May Occur [ ]	Conditions to Avoid:	N/A
	Will Not Occur [X]		

NOTE: As used in Ansul extinguishers or cylinders, Freon 12 is a gas compressed under pressure up to 360 psi at 70 deg F.

SECTION 5 - HEALTH HAZARDS

Threshold Limit Value: 1000 ppm is the OSHA PEL and the ACGIH TLV. NOTE: The effects of exposure to Freon 12 should disappear quickly upon removal from exposure. LC50 rats greater than 800,000 ppm/30 min.

Routes of Entry:

- Eye Contact: The liquid form of this material can produce chilling sensations and discomfort, also frostbite.
- Skin Contact: Evaporation of liquid from the skin can produce chilling sensations. Frostbite can occur.
- Inhalation: Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Breathing very high concentrations of vapor can cause lightheadedness, giddiness, shortness of breath, and may lead to narcosis, cardiac irregularities, unconsciousness or even death. LC50 rats, 800,000 ppm/30 min.
- Ingestion: Ingestion is not likely to occur since this material is gas at room temperature.

Signs and Symptoms:

- Acute Overexposure: Dizziness, impaired coordination, reduced mental acuity, and cardiac effects can occur. Unconsciousness or even death in high concentrations with longer exposures.
- Chronic Overexposure: None known when occupational exposures are below the TLV.

Medical Conditions Generally: Cardiac problems.

Aggravated by Exposure:

Chemical Listed as Carcinogen or Potential:

National Toxicology Program:	Yes [ ] No [X]	I.A.R.C. Monographs:	Yes [ ] No [X]	OSHA:	Yes [ ] No [X]

SECTION 6 - EMERGENCY AND FIRST AID PROCEDURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 minutes while holding lids open. If redness, itching or a burning sensation develops, get Medical attention. Treat for frostbite if necessary.
Skin Contact:	Wash the material off the skin with copious amounts of soap and water for at least 15 minutes. If redness, itching, or burning occurs, get Medical attention. Treat for frostbite if necessary.
Inhalation:	Remove victim to fresh air. If cough or other respiratory symptoms occur, consult Medical personnel. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Consult Medical personnel.
Ingestion:	If patient is conscious, give 1 to 2 glasses of warm water to drink and get Medical attention. DO NOT INDUCE VOMITING. Have victim lie down and keep warm.
NOTE TO PHYSICIAN:	Product is an asphxiant and can induce cardiac muscle sensitization to circulating epinephrine-like compounds. Do NOT give adrenalin or similar sympathomimetic drugs. Do NOT allow victim to exercise until 24 hours following specific exposures. Freeze burns of mucosal tissue can develop following specific exposures.

SECTION 7 - SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type):	Not normally necessary if controls are adequate. Self-contained breathing apparatus must be worn when using this product in testing Halon suppression systems.

Ventilation:	Local Exhaust: Recommended to control exposures. See mechanical.	Mechanical (General): Recommended in low areas or indoors where vapors may collect.	
Protective Gloves:	Lined butyl gloves for handling liquid.	Eye Protection:	Chemical goggles recommended. Full faceshield in addition if splashing of liquid form

	is possible.
Other Protective Clothing or Equipment:	Eye wash and safety showers are good safety practice in work areas when working with liquefied product.

SECTION 8 - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be Taken in Handling and Storage:	Store as a liquefied compressed gas in DOT approved pressure vessels away from high temperatures. If cylinder is not attached to a system, it must be safety capped to protect against actuation of valve and release of agent.
Other Precautions:	Note incompatibility information in Section 4.
Steps to be Taken in Case Material is Released or Spilled:	Evacuate area; ventilate to outside atmosphere. Cool or remove hot, metal surfaces or source of non-extinguished flames.
Waste Disposal Methods:	EPA Hazardous Waste No. UO 75. Dispose of in compliance with local, state, and federal regulations.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM RATINGS

HAZARD INDEX:

4	Severe Hazard	1	HEALTH
3	Serious Hazard	0	FLAMMABILITY
2	Moderate Hazard	0	REACTIVITY
1	Slight Hazard		
0	Minimal Hazard		

N/A = Not Applicable NDA = No Data Available

Form No. F-85312-4

GASOLINE (GENERIC)

* *
* M S D S *
* *
* Canadian Centre for Occupational Health and Safety *
* * * * * * * * * * * * Issue : 2001-1 (February, 2001) *

*** IDENTIFICATION ***

MSDS RECORD NUMBER : 2461632
PRODUCT NAME(S) : GASOLINE (GENERIC)
PRODUCT IDENTIFICATION : MSDS Number: 002914
DATE OF MSDS : 2000-07-22
CURRENCY NOTE : This MSDS was provided to CCOHS in electronic form on 2000-10-03

*** MANUFACTURER INFORMATION ***

MANUFACTURER : Chevron Products Company
ADDRESS : 6001 Bollinger Canyon Road
San Ramon California
U.S.A. 94583
Telephone: 800-689-3998 (Product Information, MSDS Requests) 510-242-5357 (Product Information, Technical Information)
EMERGENCY TELEPHONE NO. : 800-231-0623 (Health, 24 hr)
510-231-0623 (International, Health, 24 hr)
800-424-9300 (CHEMTREC, Transportation, 24 hr)
703-527-3887 (Transportation 24hr, Emergency Info Centers are in USA, Int'l collect calls accepted)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

GASOLINE (GENERIC)

COMPANY IDENTIFICATION

Chevron Products Company
Marketing, MSDS Coordinator
6001 Bollinger Canyon Road
San Ramon, CA 94583

EMERGENCY TELEPHONE NUMBERS

HEALTH (24 hr): (800)231-0623 or (510)231-0623 (International)
TRANSPORTATION (24 hr): CHEMTREC (800)424-9300 or (703)527-3887
Emergency Information Centers are located in U.S.A.
Int'l collect calls accepted

PRODUCT INFORMATION: (800)689-3998 MSDS Requests and Product Information

Revision Number: 14 Revision Date: 07/22/00 MSDS Number: 002914

2. COMPOSITION/INFORMATION ON INGREDIENTS

100.0 % GASOLINE (GENERIC)

CONTAINING

COMPONENTS	AMOUNT	LIMIT/QTY	AGENCY/TYPE
GASOLINE (GENERIC)	100.00%	890 mg/m3	ACGIH TWA
		1480 mg/m3	ACGIH STEL
		2000 mg/m3	OSHA PEL

POTENTIALLY

INCLUDING

BENZENE			
Chemical Name: BENZENE			
CAS71432	< 5.00%	0.5 ppm	ACGIH TWA
		2.5 ppm	ACGIH STEL
		1 ppm	OSHA PEL
		5 ppm	OSHA CEILING
		10 LBS	CERCLA 302.4 RQ
ETHYL BENZENE			
Chemical Name: BENZENE, ETHYL-			
CAS100414		100 ppm	ACGIH TWA
		125 ppm	ACGIH STEL
		100 ppm	OSHA PEL
		1,000 LBS	CERCLA 302.4 RQ
XYLENE			
Chemical Name: BENZENE, DIMETHYL-			
CAS1330207		100 ppm	ACGIH TWA
		150 ppm	ACGIH STEL
		100 ppm	OSHA PEL
		100 LBS	CERCLA 302.4 RQ
TOLUENE			
Chemical Name: TOLUENE			
CAS108883		50 ppm	ACGIH TWA
		200 ppm	OSHA PEL

	300 ppm	OSHA CEILING
	1,000 LBS	CERCLA 302.4 RQ
N-BUTANE		
Chemical Name: N-BUTANE		
CAS106978	800 ppm	ACGIH TWA
N-HEPTANE		
Chemical Name: N-HEPTANE		
CAS142825	400 ppm	ACGIH TWA
	500 ppm	ACGIH STEL
	500 ppm	OSHA PEL
N-HEXANE		
Chemical Name: N-HEXANE		
CAS110543	50 ppm	ACGIH TWA
	500 ppm	OSHA PEL
	5,000 LBS	CERCLA 302.4 RQ
HEXANE ISOMERS (OTHER THAN N)		
HEXANES		
	500 ppm	ACGIH TWA
	1000 ppm	ACGIH STEL
PENTANE (ALL ISOMERS)		
PENTANES		
	600 ppm	ACGIH TWA
	750 ppm	ACGIH STEL
	1000 ppm	OSHA PEL
CYCLOHEXANE		
Chemical Name: CYCLOHEXANE		
CAS110827	300 ppm	ACGIH TWA
	300 ppm	OSHA PEL
	1,000 LBS	CERCLA 302.4 RQ
METHYLCYCLOHEXANE		
Chemical Name: CYCLOHEXANE, METHYL		
CAS108872	400 ppm	ACGIH TWA
	500 ppm	OSHA PEL
TRIMETHYLBENZENE		
Chemical Name: BENZENE, TRIMETHYL-		
CAS25551137	25 ppm	ACGIH TWA
2,2,4-TRIMETHYLPENTANE		
Chemical Name: 2,2,4-TRIMETHYLPENTANE		
CAS540841	1,000 LBS	CERCLA 302.4 RQ

CAN CONTAIN

METHYL TERT BUTYL ETHER (MTBE)
Chemical Name: 2-METHOXY-2-METHYL PROPANE

CAS1634044	< 15.00%	40 ppm	ACGIH TWA
		50 ppm	Chevron STEL
		1,000 LBS	CERCLA 302.4 RQ

ETHYL TERT BUTYL ETHER (ETBE)
Chemical Name: 2-ETHOXY-2-METHYL PROPANE

CAS637923	< 18.00%	NONE	NA

TERT-AMYL METHYL ETHER (TAME)
Chemical Name: 2-METHOXY-2-METHYL-BUTANE

CAS994058	< 17.00%	50 ppm	Chevron STEL

OR

ETHANOL
Chemical Name: ETHYL ALCOHOL

CAS64175	< 10.00%	1000 ppm	ACGIH TWA
		1000 ppm	OSHA PEL

COMPOSITION COMMENT:
Refer to the OSHA Benzene Standard (29 CFR 1910.1028) and Table Z-2 for detailed training, exposure monitoring, respiratory protection and medical surveillance requirements before using this product.

Motor gasoline is considered a mixture by EPA under the Toxic Substances Control Act (TSCA). The refinery streams used to blend motor gasoline are all on the TSCA Chemical Substances Inventory. The appropriate CAS number for refinery blended motor gasoline is 86290-81-5. The product specifications of motor gasoline sold in your area will depend on applicable Federal and State regulations. Ethyl Alcohol is only added in limited specific distribution areas.

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3. HAZARDS IDENTIFICATION

********** EMERGENCY OVERVIEW **********

Variable colored liquid with a petroleum hydrocarbon odor.

- EXTREMELY FLAMMABLE
- HARMFUL OR FATAL IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE
- VAPOR HARMFUL

- MAY CAUSE EYE AND SKIN IRRITATION
- LONG-TERM EXPOSURE TO VAPOR HAS CAUSED CANCER IN LABORATORY ANIMALS
- KEEP OUT OF REACH OF CHILDREN

****

IMMEDIATE HEALTH EFFECTS

EYE:
Contact with the eyes causes irritation. Eye contact with the vapors, fumes, or spray mist from this substance could also cause similar signs and symptoms.

SKIN:
Contact with the skin causes irritation. Not expected to be harmful to internal organs if absorbed through the skin. Prolonged or frequently repeated contact may cause the skin to become cracked or dry from the defatting action of this material.

INGESTION:
Because of the low viscosity of this substance, it can directly enter the lungs if it is swallowed (this is called aspiration). This can occur during the act of swallowing or when vomiting the substance. Once in the lungs, the substance is very difficult to remove and can cause severe injury to the lungs and death.

INHALATION:
May be harmful if inhaled. Breathing the vapors at concentrations above the recommended exposure standard can cause central nervous system effects. The vapor or fumes from this material may cause respiratory irritation.

SIGNS AND SYMPTOMS OF EXPOSURE:
Eye damage or irritation: may include pain, tearing, reddening, swelling, and impaired vision. Skin injury: may include pain, discoloration, swelling, and blistering. Respiratory irritation: may include coughing and difficulty breathing. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

CARCINOGENICITY:
Risk depends on duration and level of exposure. See Section 11 for additional information. Gasoline has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains chemical(s) known to the State of California to cause cancer. Contains benzene, which has been classified as a carcinogen by the National Toxicology Program (NTP), and a Group 1 carcinogen (carcinogenic to humans) by the International Agency for Research on Cancer (IARC). Contains ethylbenzene which has been classified as a Group 2B carcinogen (possibly carcinogenic to humans) by the International Agency for Research on

Cancer (IARC).
Whole gasoline exhaust was reviewed by the International Agency for Research on Cancer (IARC) in their Monograph Volume 46 (1989). Evidence for causing cancer was considered inadequate in animals and inadequate in humans. IARC placed whole gasoline exhaust in Category 2B, considering it possibly carcinogenic to humans.

4. FIRST AID MEASURES

EYE:
Flush eyes with water immediately while holding the eyelids open. Remove contact lenses, if worn, after initial flushing, and continue flushing for at least 15 minutes. Get medical attention if irritation persists.

SKIN:
Wash skin immediately with soap and water and remove contaminated clothing and shoes. Get medical attention if irritation persists. Discard contaminated clothing and shoes or thoroughly clean before reuse.

INGESTION:
If swallowed, give water or milk to drink and telephone for medical advice. DO NOT make person vomit unless directed to do so by medical personnel. If medical advice cannot be obtained, then take the person and product container to the nearest medical emergency treatment center or hospital.

INHALATION:
Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue.
NOTE TO PHYSICIANS:
Ingestion of this product or subsequent vomiting can result in aspiration of light hydrocarbon liquid which can cause pneumonitis.

5. FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Flammable liquid. See section 7 for appropriate handling and storage conditions.
FLAMMABLE PROPERTIES:
FLASH POINT: (TCC) < -49F (<-45C)
AUTOIGNITION: 536F (280C)
FLAMMABILITY LIMITS (% by volume in air): Lower: 1.4 Upper: 7.6

EXTINGUISHING MEDIA:
CO2, Dry Chemical, Fire Fighting Foam, AFFF.
NFPA RATINGS: Health 1; Flammability 3; Reactivity 0.

FIRE FIGHTING INSTRUCTIONS:
Use water spray to cool fire-exposed containers and to protect personnel. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

COMBUSTION PRODUCTS:
Normal combustion forms carbon dioxide and water vapor; incomplete combustion can produce carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

CHEMTREC EMERGENCY NUMBER (24 hr): (800)424-9300 or (703)527-3887
International Collect Calls Accepted

ACCIDENTAL RELEASE MEASURES:
Eliminate all sources of ignition in the vicinity of the spill or released vapor. Stop the source of the leak or release. Clean up releases as soon as possible, observing precautions in Exposure Controls/Personal Protection. Contain liquid to prevent further contamination of soil, surface water or groundwater. Clean up small spills using appropriate techniques such as sorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Follow prescribed procedures for reporting and responding to larger releases. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Contact local environmental or health authorities for approved disposal of this material.

Release of this product should be prevented from contaminating soil and water and from entering drainage and sewer systems. U.S.A. regulations require reporting spills of this material that could reach any surface waters. The toll free number for the U.S. Coast Guard National Response Center is (800) 424-8802.

7. HANDLING AND STORAGE

This product presents an extreme fire hazard. Liquid very quickly evaporates, even at low temperatures, and forms vapor (fumes) which can catch fire and burn with explosive violence. Invisible vapor spreads easily and can be set on fire by many sources such as pilot lights,

welding equipment, and electrical motors and switches.

Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating an accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, "Flammable and Combustible Liquids", National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity", and/or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents".

Improper filling of portable gasoline containers creates danger of fire. Only dispense gasoline into approved and properly labeled gasoline containers. Always place portable containers on the ground. Be sure pump nozzle is in contact with the container while filling. Do not use a nozzle's lock-open device. Do not fill portable containers that are inside a vehicle or truck/trailer bed.

Never siphon gasoline by mouth. Use only as a motor fuel. Do not use for cleaning, pressure appliance fuel, or any other such use. DO NOT USE OR STORE near heat, sparks or open flames. USE AND STORE ONLY IN WELL VENTILATED AREA. Keep container closed when not in use. READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner, or properly disposed of.

Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Do not breathe mist. Wash thoroughly after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), 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.

ENGINEERING CONTROLS
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT
EYE/FACE PROTECTION:
No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.

SKIN PROTECTION:
No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted,

physical requirements and other substances. Suggested materials for protective gloves include: <Nitrile> <Polyurethane> <Viton> <Chlorinated Polyethylene (or Chlorosulfonated Polyethylene or CPE)>

RESPIRATORY PROTECTION:
Determine if airborne concentrations are below the recommended exposure limits. If not, wear a NIOSH approved respirator that provides adequate protection from measured concentrations of this material. Use the following respirators: Organic Vapor. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION:
Variable colored liquid with a petroleum hydrocarbon odor.

pH:	NA
VAPOR PRESSURE:	5 - 15 PSI @ 100F (REID)
VAPOR DENSITY (AIR=1):	3-4
BOILING POINT:	25 - 225C (range)
FREEZING POINT:	NA
MELTING POINT:	NA
SOLUBILITY:	Soluble in hydrocarbons; insoluble in water.
SPECIFIC GRAVITY:	0.7 - 0.8 @ 15.6/15.6C
PERCENT VOLATILE (VOL):	99+%

10. STABILITY AND REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS:
None known
CHEMICAL STABILITY:
Stable.
CONDITIONS TO AVOID:
See section 7.
INCOMPATIBILITY WITH OTHER MATERIALS:
May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
HAZARDOUS POLYMERIZATION:
Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:
The mean 24-hour Draize eye irritation score in rabbits is 0.

SKIN EFFECTS:
This material was not a skin sensitizer in the modified Buehler Guinea Pig Sensitization Test. For a 4-hour exposure, the Primary Irritation Index (PII) in rabbits is: 4.8.

ACUTE ORAL EFFECTS:
The oral LD50 in rats is > 5 ml/kg.

ACUTE INHALATION EFFECTS:
No product toxicology data available.

ADDITIONAL TOXICOLOGY INFORMATION:
When vapor exposures are low, or short duration and infrequent, such as during refuelling and tanker loading/unloading, neither total hydrocarbon nor components such as benzene are likely to result in any adverse health effects. In situations such as accidents or spills where exposure to gasoline vapor and liquid is potentially high, attention should be paid to potential toxic effects of specific components in addition to those of total hydrocarbons. Information about specific components in gasoline are found in Section 1 and Section 15 of this MSDS. More detailed information on the health hazard of specific gasoline components can be obtain from the Chevron Emergency Information Center (see Section 1 for telephone numbers).

A study was done in which ten volunteers were exposed for 30 minutes to about 200, 500 or 1000 ppm concentrations of the vapor of three different