

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

PRODUCT NAME: CARBON MONOXIDE

TRADE NAMES/SYNONYMS:

MTG MSDS 18; CARBON OXIDE; CARBONIC OXIDE; CARBON OXIDE (CO); FLUE GAS; UN 1016; CO; MAT04290

CHEMICAL FAMILY: inorganic, gas

2. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=4 REACTIVITY=0



GHS CLASSIFICATION:

Flammable gas, Category 1
Gas under pressure, Compressed gas
Acute toxicity, Category 3
Toxic to reproduction, Category 1A
Specific target organ systemic toxicity following single exposure, Category 1
Specific target organ systemic toxicity following repeated exposure, Category 2

GHS SYMBOL:



GHS SIGNAL WORD: DANGER

GHS HAZARD STATEMENT:

Extremely flammable gas
Contains gas under pressure; may explode if heated
Toxic if inhaled
May damage fertility or the unborn child

Causes damage to organs

Causes damage to organs through prolonged or repeated exposure

GHS PRECAUTIONARY STATEMENTS: Keep away from heat, sparks and open flame - No smoking. Use only outdoors or in a well-ventilated area. Do not breathe gas. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not eat, drink, or smoke when using this product. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. **IF INHALED:** Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician. Specific treatment may be needed, see first aid section of Safety Data Sheet. Protect from sunlight and store in well-ventilated place. Store locked up. Store container tightly closed in well-ventilated place. Dispose in accordance with all applicable regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT: CARBON MONOXIDE

CAS NUMBER: 630-08-0

EC NUMBER (EINECS): 211-128-3

EC INDEX NUMBER: 006-001-00-2

PERCENTAGE: 100

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). **DO NOT USE HOT WATER.** If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

EYE CONTACT: Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

SYMPTOMS/EFFECTS:

ACUTE: cardiovascular system damage, brain and nervous system damage, frostbite

DELAYED: cardiovascular system damage, brain and nervous system damage, reproductive effects

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. Vapor/air mixtures are explosive. Containers may rupture or explode if exposed to heat.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

UNSUITABLE EXTINGUISHING MEDIA: None known.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Cool containers with water. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

FIRE FIGHTING PROTECTIVE EQUIPMENT: Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Wear personal protective clothing and equipment, see Section 8.

EMERGENCY PROCEDURES:

Stop leak if possible without personal risk. Avoid heat, flames, sparks and other sources of ignition. Keep unnecessary people away, isolate hazard area and deny entry.

ENVIRONMENTAL PRECAUTIONS:

Keep out of water supplies and sewers. Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANUP:

Remove sources of ignition. Ventilate closed spaces before entering. All equipment used when handling the product must be grounded. Damaged cylinders should be handled only by specialists.

7. HANDLING AND STORAGE

STORAGE: Store in accordance with all current regulations and standards. Store in a cool, dry place. Store in a well-ventilated area. Avoid direct sunlight. Avoid heat, flames, sparks and other sources of ignition. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:

CARBON MONOXIDE:

50 ppm (55 mg/m³) OSHA TWA

35 ppm (40 mg/m³) OSHA TWA (vacated by 58 FR 35338, June 30, 1993)

200 ppm (229 mg/m³) OSHA ceiling (vacated by 58 FR 35338, June 30, 1993)

25 ppm ACGIH TWA

35 ppm (40 mg/m³) NIOSH recommended TWA 10 hour(s)

200 ppm (229 mg/m³) NIOSH recommended ceiling

BIOLOGICAL LIMIT VALUES:

CARBON MONOXIDE:

Biological limit values for carbon monoxide should be used.

ENGINEERING CONTROLS: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.

GLOVES: Wear insulated gloves.

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: 1200 ppm

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

350 ppm

Any supplied-air respirator.

875 ppm

Any supplied-air respirator operated in a continuous-flow mode.

1200 ppm

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.

End of service life indicator required (ESLI).

Any self-contained breathing apparatus with a full facepiece.

Any supplied-air respirator with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Escape -

Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.

End of service life indicator required (ESLI).

Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas

COLOR: colorless

ODOR: odorless

TASTE: tasteless

MOLECULAR WEIGHT: 28.01

MOLECULAR FORMULA: C-O

BOILING POINT: -191.5 C

FREEZING POINT: -205 C

FLASH POINT: Not available

LOWER FLAMMABLE LIMIT: ≥ 12.5 % by volume

UPPER FLAMMABLE LIMIT: 74 % by volume

AUTOIGNITION: 700 C

VAPOR PRESSURE: 760 mmHg @ -191 C

VAPOR DENSITY (air=1): 0.968

SPECIFIC GRAVITY: Not applicable

DENSITY: 1.250 g/L @ 0 C

WATER SOLUBILITY: 2.3% @ 20 C

PH: Not applicable

VOLATILITY: Not applicable

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not applicable

VISCOSITY: 0.01657 cP @ 0 C

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable

OCTANOL/WATER PARTITION COEFFICIENT (LOG K_{ow}): Not available

SOLVENT SOLUBILITY:

Soluble: alcohol, benzene, acetic acid, ethyl acetate, chloroform, cuprous chloride solutions

10. STABILITY AND REACTIVITY

STABILITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers.

INCOMPATIBILITIES: oxidizing materials, halogens, metal oxides, metals, combustible materials, lithium

HAZARDOUS DECOMPOSITION:

Thermal decomposition products: oxides of carbon

11. TOXICOLOGICAL INFORMATION

CARBON MONOXIDE:

LIKELY ROUTES OF EXPOSURE: inhalation

ASPIRATION HAZARD: Not applicable.

SENSITIZER:

DERMAL: No data available.

RESPIRATORY: No data available.

EFFECTS FROM EXPOSURE:

IMMEDIATE: cardiovascular system damage, brain and nervous system damage, frostbite

DELAYED: cardiovascular system damage, brain and nervous system damage, reproductive effects

TOXICITY DATA: 4 mg/m³/12 hour(s) inhalation-human LCLo; 600 mg/m³/10 minute(s) inhalation-human TCLo; 4000 ppm/30 minute(s) inhalation-man LCLo; 650 ppm/45 minute(s) inhalation-man TCLo; 5000 ppm/5 minute(s) inhalation-human LCLo; 1807 ppm/4 hour(s) inhalation-rat LC50; 2444 ppm/4 hour(s) inhalation-mouse LC50; 4000 ppm/46 minute(s) inhalation-dog LCLo; 4000 ppm inhalation-rabbit LCLo; 5718 ppm/4 hour(s) inhalation-guinea pig LC50; 5000 ppm/5 minute(s) inhalation-mammal LCLo; 1334 ppm inhalation-wild bird LC50; 1 percent/45 minute(s) inhalation-domestic animal TCLo; 1 percent/65 minute(s) inhalation-domestic animal TCLo; 1 percent/95 minute(s) inhalation-domestic animal TCLo; 1 percent/100 minute(s) inhalation-domestic animal TCLo; 1 percent/120 minute(s) inhalation-domestic animal TCLo; 1 percent/150 minute(s) inhalation-domestic animal TCLo; 35 ml/kg intraperitoneal-rat TDLo; 2230 mg/m³/2 hour(s) inhalation-mouse LC50; 1900 mg/m³/2 hour(s) inhalation-mouse LC; 5200 mg/m³/1 hour(s) inhalation-rat LC; 40 mg/m³/4 hour(s) inhalation-rat TCLo; 88 mg/m³/20 minute(s) inhalation-rat TCLo; 176 mg/m³/20 minute(s) inhalation-rat TCLo; 800 mg/m³/4 hour(s) inhalation-rat TCLo; 1900 mg/m³/4 hour(s) inhalation-rat LC50; 2000 mg/m³/11 minute(s) inhalation-rat TCLo; 13500 mg/m³/15 minute(s) inhalation-rat LC50; 50 mg/m³/60 minute(s) inhalation-cat TCLo; 2000 mg/m³/20 minute(s) inhalation-cat TCLo; 500 mg/m³/30 minute(s) inhalation-cat LCLo; 34400 mg/m³/3 minute(s) inhalation-cat LCLo; 2000 mg/m³/30 minute(s) inhalation-dog TCLo; 23000 mg/m³/20 minute(s) inhalation-dog LCLo; 2000 mg/m³/30 minute(s) inhalation-guinea pig TCLo; 4600 mg/m³/2 hour(s) inhalation-guinea pig LCLo; 10300 mg/m³/60 minute(s) inhalation-guinea pig LCLo; 100 mg/m³/2 hour(s) inhalation-rabbit TCLo; 6600 mg/m³/10 minute(s) inhalation-rabbit TCLo; 17200 mg/m³/40 minute(s) inhalation-rabbit LCLo; 20000 mg/m³/60 minute(s) inhalation-rabbit LCLo; 1145 mg/m³/30 minute(s) inhalation-monkey TCLo; 6 mg/m³/25 minute(s) inhalation-human TCLo; 11 mg/m³/5 hour(s) inhalation-human TCLo; 31 mg/m³/3 hour(s) inhalation-human TCLo; 33 mg/m³/6 hour(s) inhalation-human TCLo; 50 mg/m³/2 hour(s) inhalation-human TCLo; 50 mg/m³/5 hour(s) inhalation-human TCLo; 55 mg/m³/8 hour(s) inhalation-

human TCLo; 60 mg/m³/6 hour(s) inhalation-human TCLo; 80 mg/m³/3 hour(s) inhalation-human TCLo; 220 mg/m³/1 hour(s) inhalation-human TCLo; 220 mg/m³/3 hour(s) inhalation-human TCLo; 230 mg/m³/6 hour(s) inhalation-human TCLo; 440 mg/m³/4 hour(s) inhalation-human TCLo; 440 mg/m³/1 hour(s) inhalation-human TCLo; 460 mg/m³/4 hour(s) inhalation-human TCLo; 660 mg/m³/2 hour(s) inhalation-human TCLo; 660 mg/m³/4 hour(s) inhalation-human TCLo; 800 mg/m³/5 minute(s) inhalation-human TCLo; 800 mg/m³/20 minute(s) inhalation-human TCLo; 800 mg/m³/3 hour(s) inhalation-human TCLo; 880 mg/m³/2 hour(s) inhalation-human TCLo; 880 mg/m³/4 hour(s) inhalation-human LCLo; 1260 mg/m³/90 minute(s) inhalation-human TCLo; 1300 mg/m³/2 hour(s) inhalation-human TCLo; 1350 mg/m³/33 minute(s) inhalation-human TCLo; 1760 mg/m³/20 minute(s) inhalation-human TCLo; 1760 mg/m³/2 hour(s) inhalation-human TCLo; 1800 mg/m³/1 hour(s) inhalation-human LCLo; 2000 mg/m³/12 minute(s) inhalation-human TCLo; 3000 mg/m³/1 hour(s) inhalation-human LCLo; 2300 mg/m³/30 minute(s) inhalation-human LCLo; 3520 mg/m³/5 minute(s) inhalation-human TCLo; 3520 mg/m³/30 minute(s) inhalation-human TCLo; 3400 mg/m³/20 minute(s) inhalation-human LCLo; 5000 mg/m³/17 minute(s) inhalation-human TCLo; 5700 mg/m³/2 minute(s) inhalation-human LCLo; 14080 mg/m³/1 minute(s) inhalation-human LCLo; 1000 ppm/5 minute(s) inhalation-rat TCLo; 1 pph inhalation-domestic animal TCLo; 1 pph/120 minute(s) inhalation-domestic animal TCLo; 1005 ppm/90 minute(s) inhalation-rat TCLo; 50 ppm/2 hour(s) inhalation-rat TCLo; 4000 ppm/15 minute(s) inhalation-rat TCLo; 1 pph/2 hour(s) inhalation-domestic animal LCLo; 1000 ppm/40 minute(s) inhalation-rat TCLo; 1000 ppm/40 minute(s) inhalation-mouse TCLo; 0.3 pph/40 minute(s) inhalation-rat TCLo; 1000 ppm inhalation-rat TCLo; 12000 ppm inhalation-rat LCLo; 6600 ppm/30 minute(s) inhalation-rat LC50; 3000 ppm/60 minute(s) inhalation-rat TDLo; 24000 ppm/4 minute(s) inhalation-rat TDLo; 24000 ppm/5 minute(s) inhalation-rat LD30; 500 ppm/5 minute(s) inhalation-rat TDLo; 2240.8 ug/kg intraperitoneal-mouse TDLo; 1800 ppm/1 hour(s)-14 day(s) intermittent inhalation-rat TCLo; 30 mg/m³/8 hour(s)-10 week(s) intermittent inhalation-rat TCLo; 96 ppm/24 hour(s)-90 day(s) continuous inhalation-rat TCLo; 250 ppm/5 hour(s)-20 day(s) intermittent inhalation-rat TCLo; 375 mg/m³/5 hour(s)-20 week(s) intermittent inhalation-rat TCLo; 5983 mg/kg/18 week(s) intermittent subcutaneous-rat TDLo; 50 ppm/30 day(s) intermittent inhalation-mouse TCLo; 200 ppm/24 hour(s)-90 day(s) continuous inhalation-monkey TCLo; 200 mg/m³/3 hour(s)-13 week(s) intermittent inhalation-rabbit TCLo; 50 ppm/24 hour(s)-8 week(s) continuous inhalation-rabbit TCLo; 200 mg/m³/5 hour(s)-4 week(s) intermittent inhalation-guinea pig TCLo; 200 mg/m³/5 hour(s)-30 week(s) intermittent inhalation-guinea pig TCLo; 200 ppm/24 hour(s)-90 day(s) continuous inhalation-guinea pig TCLo; 105 ppm/7 day(s) continuous inhalation-rat TCLo; 315 ppm/21 day(s) continuous inhalation-rat TCLo; 110 mg/m³/1 year(s) intermittent inhalation-rabbit TCLo; 170 mg/m³/45 day(s) intermittent inhalation-rabbit TCLo; 10 mg/m³/4 hour(s)-10 week(s) intermittent inhalation-rat TCLo; 10 mg/m³/4 hour(s)-10 week(s) intermittent inhalation-mouse TCLo; 53 mg/m³/30 day(s) continuous inhalation-rat TCLo; 100 mg/m³/1 week(s) continuous inhalation-rat TCLo; 110 mg/m³/90 day(s) intermittent inhalation-monkey TCLo; 100 mg/m³/10 week(s) continuous inhalation-guinea pig TCLo; 16 pph/48 hour(s) continuous inhalation-guinea pig TCLo; 4.5 pph/13 day(s) continuous inhalation-rabbit TCLo; 2 pph/30 day(s) intermittent inhalation-man TCLo; 700 ml/kg/7 day(s) intermittent intraperitoneal-mouse TDLo

CARCINOGEN STATUS: No data available.

TARGET ORGANS: blood, heart, nervous system

CHRONIC EFFECTS:

cardiovascular system damage, brain and nervous system damage, reproductive effects

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: blood system disorders, heart or cardiovascular disorders, hormonal disorders, respiratory disorders

TUMORIGENIC DATA: No data available.

MUTAGENIC DATA: Limited mutagenic data available, however carbon monoxide is generally not considered to be mutagenic.

REPRODUCTIVE EFFECTS DATA: 75 ppm inhalation-rat TCLo/24 hour(s) 0-20 day(s) pregnant female continuous; 150 ppm inhalation-rat TCLo/24 hour(s) 1-22 day(s) pregnant female continuous; 1 mg/m³ inhalation-rat TCLo/24 hour(s) 72 day(s) pre pregnancy continuous; 150 ppm inhalation-rat TCLo/24 hour(s) 0-20 day(s) pregnant female continuous; 150 ppm inhalation-rat TCLo 0-20 day(s) pregnant female continuous; 65 ppm inhalation-mouse TCLo/24 hour(s) 7-18 day(s) pregnant female continuous; 250 ppm inhalation-mouse TCLo/7 hour(s) 6-15 day(s) pregnant female continuous; 125 ppm inhalation-mouse TCLo/24 hour(s) 7-18 day(s) pregnant female continuous; 8 pph inhalation-mouse TCLo/1 hour(s) 8 day(s) pregnant female continuous; 180 ppm inhalation-rabbit TCLo/24 hour(s) 1-30 day(s) pregnant female continuous; 200 ppm inhalation-guinea pig TCLo/10 hour(s) 23-61 day(s) pregnant female continuous; 103 mg/m³ inhalation-rat TCLo 1-22 day(s) pregnant female continuous; 103 mg/m³ inhalation-mouse TCLo 1-21 day(s) pregnant female continuous; 550 mg/m³ inhalation-guinea pig TCLo 20-40 day(s) pregnant female continuous; 480 mg/m³ inhalation-guinea pig TCLo 20-50 day(s) pregnant female continuous; 100 mg/m³ inhalation-guinea pig TCLo 10 week(s) pre pregnancy continuous; 150 ppm inhalation-rat TCLo 1-20 day(s) pregnant female continuous; 65 ppm inhalation-mouse TCLo 1-14 day(s) pregnant female continuous; 500 ppm inhalation-mouse TCLo 7-18 day(s) pregnant female continuous; 125 ppm inhalation-mouse TCLo 1-7 day(s) pregnant female continuous

ADDITIONAL DATA: Alcohol may enhance the toxic effects. May cross the placenta. Smoking may enhance the toxic effects.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

FISH TOXICITY: 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish (*Lepomis humilis*)

INVERTEBRATE TOXICITY: No data available.

ALGAL TOXICITY: No data available.

PHYTOTOXICITY: Absorbed and metabolized by plants in varying rates dependent on ecological conditions.

FATE AND TRANSPORT:

BIODEGRADATION: Oxidation to carbon dioxide in aerobic conditions found to vary between bacteria species.

ATMOSPHERIC PROCESSES: Degraded by photochemical reactions in atmosphere.

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Carbon monoxide, compressed

ID NUMBER: UN1016

HAZARD CLASS OR DIVISION: 2.3

LABELING REQUIREMENTS: 2.3; 2.1

QUANTITY LIMITATIONS:

PASSENGER AIRCRAFT OR RAILCAR: Forbidden

CARGO AIRCRAFT ONLY: 25 kg

ADDITIONAL SHIPPING DESCRIPTION: Toxic-Inhalation Hazard Zone D

MARITIME TRANSPORT IMDG:

PROPER SHIPPING NAME: Carbon monoxide, compressed

UN NUMBER: UN1016

CLASS OR DIVISION: 2.3

SUBSIDIARY RISK(S): 2.1

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: Yes

CHRONIC: Yes

FIRE: Yes

REACTIVE: No

SUDDEN RELEASE: Yes

SARA TITLE III SECTION 313 (40 CFR 372.65): Not regulated.

OSHA PROCESS SAFETY (29CFR1910.119): Not regulated.

STATE REGULATIONS:

California Proposition 65:

Known to the state of California to cause the following:

Carbon monoxide

Developmental toxicity (Jul 01, 1989)

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: A, B1, D1A, D2A.

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDL): Listed on DSL.

16. OTHER INFORMATION

REVISION DATE: Feb 22 2008

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