

# Material Safety Data Sheet

## CARBON MONOXIDE, GAS

Revision 1/03

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Advanced Gas Technologies  
1401 Stauffer Road  
Palm, PA 18070.

Telephone Number: (215) 541-4116

MSDS IDENTIFICATION CODE / NUMBER: CM

#### EMERGENCY TELEPHONE NUMBER

CHEMTREC (800) 424-9300

**PRODUCT NAME:** CARBON MONOXIDE, GAS

**CAS NUMBER:** 630-08-0

**CHEMICAL NAME:** Nonmetal Oxide

**CHEMICAL FORMULA:** CO

**RTECS NUMBER:** FF500000

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT NAME	EXPOSURE LIMITS	% VOLUME
CARBON MONOXIDE TO 99.9999	ACGIH TLV-TWA: 50 ppm	99.0
CAS NUMBER: 630-08-0	ACGIH TLV-STEL 400 ppm OSHA PEL-TWA: 50 ppm (Transitional) OSHA PEL-TWA: 55 mg/m <sup>3</sup> OSHA PEL-TWA: 35 ppm (final) OSHA Ceiling: 200 ppm (final)	

### 3. HAZARDS IDENTIFICATION

NO DATA GIVEN

### 4. FIRST AID MEASURES

#### INHALATION

Conscious persons should be assisted to an uncontaminated area and treated with supplemental oxygen. Quick removal from contaminated area is most important. Unconscious persons should be moved to an uncontaminated area and given artificial respiration and oxygen at the same time. The administering of the oxygen at an elevated pressure (up to 2 to 2.5 atmospheres) has shown to be beneficial as has treatment in a hyperbaric chamber. The physician should be informed that the patient has inhaled toxic quantities of carbon monoxide.

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## **Page 2: Carbon Monoxide Continued**

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVER EXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPED WITH SELF-CONTAINED BREATHING APPARATUS AND BE COGNIZANT OF EXTREME FIRE AND EXPLOSION HAZARD.

### **5. FIRE FIGHTING MEASURES**

#### **FLAMMABLE PROPERTIES**

**FLASH POINT:** Gas  
**AUTOIGNITION:** 1166 F 630 C  
**LOWER EXPLOSIVE LIMIT:** (%): 12.5  
**UPPER EXPLOSIVE LIMIT:** (%): 74.0

#### **FIRE AND EXPLOSION HAZARDS**

Having the same density as air, it will not diffuse by rising as with some lighter flammable gases such as hydrogen or Natural Gas (methane).

Electrical Classification: Class 1, Group C

Flammable in air over a very wide range. It reacts violently with Oxygen Difluoride and Barium Peroxide.

### **6. ACCIDENTAL RELEASE MEASURES**

Evacuate all personnel from affected areas. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact CHEMTREC for emergency assistance or call ADVANCED GAS TECHNOLOGIES.

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### **7. HANDLING AND STORAGE**

#### **HANDLING AND STORAGE PRECAUTIONS**

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure regulator when connecting cylinder to lower pressure (<3000psig) piping or systems. Do not heat cylinder by any means to increase rate of product from cylinder. Use check valve or trap in the discharge line to prevent Hazardous back flow into cylinder.

Protect cylinder from physical damage. Store within a cool, dry, well ventilated area, of non-combustible construction, away from heavily trafficked areas and emergency exits. Do not allow temperature where cylinders are being stored to exceed 125 F (52 C). Cylinders should be stored upright and firmly secured to prevent from falling or being knocked over. Full and empty cylinders should be segregated. Use "first in -first out" inventory system to prevent full cylinder from being stored for excessive periods of time.

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### Page 3: Carbon Monoxide Continued

Carbon Monoxide can be handled in all commonly used metals up to approximately 500 psig (3450 kPa). Above that pressure it forms toxic and corrosive carbonyl compounds with some metals. Carbon Steels, aluminum alloys, copper and copper alloys. Low carbon stainless steels and nickel – based alloys such as Hastelloy A, B and C are recommended for higher pressure applications.

Earth-ground and bond all lines and equipment associated with the carbon monoxide system. Electrical equipment should be non-sparking or explosion proof. Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder, filled by a party other than the owner or with his written consent is a violation of Federal Law (CFR 49).

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### ENGINEERING CONTROLS

Use local exhaust to prevent accumulation above the exposure limit. Use general mechanical ventilation in accordance with electrical codes.

### EYE / FACE PROTECTION

Safety goggles or glasses.

### SKIN PROTECTION

Protective gloves of any material appropriate for the job.

### RESPIRATORY PROTECTION

Positive pressure air line with full- mask and escape bottle or self - contained breathing apparatus should be available for emergency use.

### OTHER / GENERAL PROTECTION

Safety shoes.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

A colorless gas.

### ODOR

Odorless gas.

### BASIC PHYSICAL PROPERTIES

<b>BOILING POINT:</b>	-312.7 F	-191.5 C
<b>MELTING POINT:</b>	-337.1 F	-205.1 C
<b>VAPOR PRESSURE:</b>	>220.4	
<b>SPECIFIC GRAVITY:</b>	0.96	
<b>MOLECULAR WEIGHT:</b>	28.01	
<b>SOLUBILITY (H2O):</b>	Very Slight	

## 10. STABILITY AND REACTIVITY

**STABILITY:** Unstable

### CONDITIONS TO AVOID (STABILITY)

None

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**INCOMPATIBLE MATERIALS**

Oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS**

Carbon monoxide

**HAZARDOUS POLYMERIZATION:** Will not occur

**11. TOXICOLOGICAL INFORMATION**

**ACUTE INHALATION EFFECTS**

Depending on levels and duration of exposure, symptoms may include headache, dizziness, heart palpitations weakness, confusion and nausea to convulsions, eventual unconsciousness and death.

The oxygen transport function of the hemoglobin of the blood is reduced since it reacts with inhaled carbon monoxide to form carboxyhemoglobin instead of its normal reaction with the oxygen in the lungs to form oxyhemoglobin. The affinity of hemoglobin for carbon monoxide is 200 to 300 times greater than its affinity for oxygen.

**MISCELLANEOUS TOXICOLOGICAL INFORMATION**

All the disorders are due to markedly reduce cellular respiration and may include central nervous system impairment, cardiovascular collapse, renal insufficiency, coma, etc.

**MISCELLANEOUS TOXICOLOGICAL INFORMATION**

**Carcinogenicity:** NTP: No IARC: No OSHA: No

**12. ECOLOGICAL INFORMATION**

NO DATA GIVEN

**13. DISPOSAL INFORMATION**

Do not attempt to dispose of waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Advanced Gas Technologies.

**14. TRANSPORT INFORMATION**

**PROPER SHIPPING NAME:** Carbon Monoxide

**HAZARD CLASS:** Flammable Gas

**DOT IDENTIFICATION NUMBER:** UN1016

**DOT SHIPPING LABEL:** Flammable Gas

**15 REGULATORY INFORMATION**

**SARA TITLE III NOTIFICATION AND INFORMATION**

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