



The Steel Company of Canada

Blast Furnace Gas Safety Data Sheet (SDS)

Section 1 – Identification

- 1(a) Product Identifier Used on Label:** Blast Furnace Gas
- 1(b) Other Means of Identification:** None
- 1(c) Recommended Use of the Chemical and Restrictions on Use:** Fuel gas; none
- 1(d) Name, Address, and Telephone Number:**
 Stelco Inc.
 386 Wilcox Street
 Hamilton, ON L8L 8K5
 Phone number : (905) 528-2511 (8:00 am to 5:00 pm)
- 1(e) Emergency Phone Number:** 1-888-CAN-UTEC (226-8832) or 613-996-6666

Section 2 – Hazard(s) Identification

2(a) Classification of the Chemical: Blast Furnace Gas is considered a hazardous material according to the criteria specified in the federal Hazardous Products Regulations. The categories of Health Hazards as defined in “GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS)”, have been evaluated. Refer to Section 3, 8 and 11 for additional information.

2(b) Signal Word, Hazard Statement(s), Symbols and Precautionary Statement(s):

Hazard Symbol	Hazard Classification	Signal Word	Hazard Statement(s)	Precautionary Statement(s)
	Flammable Gases – 1A	Danger	Extremely flammable gas.	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
	Reproductive Toxicity -1A Specific Target Organ Toxicity (STOT) Repeated Exposure - 1		May damage fertility of the unborn child.	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
	Acute Toxicity-Inhalation – 4		Causes damage to the heart through prolonged or repeated exposures.	In case of leakage, eliminate all ignition sources.
None	Simple Asphyxiant - 1		Harmful if inhaled. May displace oxygen and cause rapid suffocation.	Store in well-ventilated place. Do not breathe gas. Use only outdoors or with adequate ventilation.
				Wear protective gloves/protective clothing/eye protection/face protection.
				Wash hands thoroughly after handling. Obtain, read and follow all safety instructions before use.
				If exposed, concerned, or feel unwell, get medical help/advice.
				Do not eat, drink or smoke when using this product.
				If inhaled: Remove person to fresh air and keep comfortable for breathing.
				Get medical help.
				Store locked up.
				Dispose of contents in accordance with federal, provincial and local regulations.

2(c) Hazards Not Otherwise Classified: None Known

2(d) Unknown Acute Toxicity Statement (mixture): None Known

Section 3 – Composition/Information on Ingredients

3(a-c) Chemical Name, Common Name (Synonyms), CAS Number and Other Identifiers, and Concentration:

Chemical Name	CAS Number	% weight
Nitrogen	7727-37-9	47-60
Carbon Monoxide	630-08-0	19-25
Carbon Dioxide	124-38-9	17-25
Hydrogen	1333-74-0	2-9.6

CAS- Chemical Abstract Service

Section 4 – First-aid Measures

4(a) Description of Necessary Measures: If exposed, concerned or feel unwell: Get medical advice/attention.

- **Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if needed.
- **Eye Contact:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing if eye irritation persists: Get medical advice/attention if needed.
- **Skin Contact:** This material is a gas under normal atmospheric conditions. If exposed or concerned get medical advice/attention, if needed.
- **Ingestion:** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

4(b) Most Important Symptoms/Effects, Acute and Delayed (Chronic):

Acute Effects:

- **Inhalation:** When exposed at high concentrations it will act as a simple asphyxiant. Simple asphyxiants displace the oxygen in the air and can cause symptoms of oxygen deprivation.
- **Eye:** None Expected
- **Skin:** None Expected
- **Ingestion:** This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Chronic Effects:

May cause heart problems with prolonged or repeat exposures.

4(c) Immediate Medical Attention and Special Treatment: Treat symptomatically.

Section 5 – Fire-fighting Measures

5(a) Suitable (and unsuitable) Extinguishing Media: Leaking gas fire: Do not extinguish unless leak can be stopped safely, or fire is immediately impacting human life. Eliminate all ignition sources if safe to do so. Extinguish with foam, carbon dioxide, dry powder or water fog once leak is stopped. Do not use a solid stream of water as it may scatter and spread the fire.

5(b) Specific Hazards Arising from the Chemical: Not applicable for gas.

5(c) Special Protective Equipment and Precautions for Fire-fighters: Self-contained NIOSH-approved respiratory protection and full protective clothing should be worn when fumes and/or smoke from fire are present. Firefighters should wear full face-piece self-contained breathing apparatus and chemical protective clothing with thermal protection. Direct water stream will scatter and spread flames and, therefore, should not be used. Evacuate area. Remove pressurized gas cylinders from the immediate vicinity. Cool containers exposed to flames with water until well after the fire is out. Close the valve if no risk is involved. Do not extinguish a leaking gas fire unless leak can be stopped. If leak cannot be stopped and there is no danger to surrounding area, allow the fire to burn out. Fight fire from a protected location. Prevent buildup of vapors or gases to explosive concentrations.

Section 6 - Accidental Release Measures

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: If leakage cannot be stopped, evacuate area. Contact Gas Services to perform testing before entering the area.

6(b) Methods and Materials for Containment and Clean Up: Eliminate all ignition sources - smoking, flares, sparks, or flames in immediate area. Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, provincial and local regulations. Follow applicable provincial and federal requirements.

Section 7 - Handling and Storage

7(a) Precautions for Safe Handling: Keep away from heat/sparks/open flames/hot surfaces. No smoking. Eliminate all ignition sources if safe to do so. Practice good housekeeping.

7(b) Conditions for Safe Storage, Including any Incompatibilities: Store in well-ventilated place. If feasible, store locked up.

Section 8 - Exposure Controls/Personal Protection

8(a) Occupational Exposure Limits (OELs): The following exposure limits are offered as reference, for an experienced industrial hygienist to review.

Ingredients	Ontario TWA ¹	ACGIH TLV ²	NIOSH REL ⁴	IDLH ⁵
Nitrogen	Simple Asphyxiant	Asphyxiant	NE	NE
Carbon Monoxide	25 ppm	25 ppm	35 ppm 200 ppm Ceiling	1,200 ppm
Carbon Dioxide	5000 ppm 30,000 ppm (STEL)	5000 ppm 30,000 ppm (STEL)	5000 ppm 30,000 ppm (STEL)	40,000 ppm
Hydrogen	Simple Asphyxiant	Asphyxiant	NE	NE

NE - None Established

1. Time-Weighted Average (TWA) limits established by the Ontario Ministry of Labour are 8-hour TWA concentrations unless otherwise noted. A Short-Term Exposure Limit (STEL) is defined as the maximum concentration to which workers can be exposed for a short period of time (15 minutes) for only four times throughout the day with at least one hour between exposures.
2. Threshold Limit Values (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted. ACGIH TLVs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes. A Short-Term Exposure Limit (STEL) is defined as the maximum concentration to which workers can be exposed for a short period of time (15 minutes) for only four times throughout the day with at least one hour between exposures.

8(a) Occupational Exposure Limits (OELs): (continued)

3. The National Institute for Occupational Safety and Health Recommended Exposure Limits (NIOSH-REL) Compendium of Policy and Statements. NIOSH, Cincinnati, OH (1992). NIOSH is the U.S. federal agency designated to conduct research relative to occupational safety and health. As is the case with ACGIH TLVs, NIOSH RELs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes.
4. The "immediately dangerous to life or health air concentration values (IDLHs)" are used by NIOSH as part of the respirator selection criteria and were first developed in the mid-1970's by NIOSH. The Documentation for Immediately Dangerous to Life or Health Concentrations (IDLHs) is a compilation of the rationale and sources of information used by NIOSH during the original determination of 387 IDLHs and their subsequent review and revision in 1994.

8(b) Appropriate Engineering Controls: Local exhaust ventilation should be used to control the emission of air contaminants. General dilution ventilation may assist with the reduction of air contaminant concentrations.

8(c) Individual Protection Measures:

- **Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow CSA Standard Z94.4-11 "Selection Care and Use of Respirators," or the "NIOSH Guide to the Selection and Use of Particulate Respirators (1996)" for additional information. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. Concentration in air of the various contaminants determines the extent of respiratory protection needed. Use a positive-pressure-demand, full-face, supplied air respirator or SCBA for concentrations above the exposure limit. If exposure is above the IDLH for any of the constituents, or there is a possibility of an uncontrolled release or exposure levels are unknown, then use a positive-demand, full-face, supplied air respirator with escape bottle or SCBA.

Warning! Air-purifying respirators both negative-pressure and powered-air do not protect workers in oxygen-deficient atmospheres.

- **Eyes:** Wear appropriate eye protection to prevent eye contact.
- **Skin:** Wear appropriate personal protective clothing to prevent skin contact. This may include fire retardant clothing.

Section 9 - Physical and Chemical Properties

9(a) Physical State: gas**9(b) Colour:** colourless

9(c) Odor: May have a slight sulphur odor, but this should not be relied upon as a warning of its presence.

9(d) Melting Point/Freezing Point: NA**9(e) Initial Boiling Point and Boiling Range:** NA**9(f) Flammability (solid, gas):** Flammable**9(g) Upper/lower Flammability or Explosive Limits:** 27%-75%**9(h) Flash Point:** NA**9(i) Auto-ignition Temperature:** ND**9(j) Decomposition Temperature:** ND**9(k) pH:** NA**9(l) Kinematic Viscosity:** NA**9(m) Solubility:** NA**9(n) Partition Coefficient n-octanol/water:** NA**9(o) Vapor Density (Air = 1):** 1.02**9(p) Relative Density:** NA**9(q) Vapor Pressure:** NA**9(r) Particle Characteristics:** NA

NA - Not Applicable

ND - Not Determined for product as a whole

Section 10 - Stability and Reactivity

10(a) Reactivity: Can readily form explosive mixtures with air, which are easily ignited by a static charge.

10(b) Chemical Stability: Stable under normal storage and handling conditions.

10(c) Possibility of Hazardous Reaction: No Data Found

10(d) Conditions to Avoid: Static discharge, sparks, open flames and other ignition sources.

10(e) Incompatible Materials: Oxidizing agents.

10(f) Hazardous Decomposition Products: Can produce carbon dioxide and carbon monoxide.

Section 11 - Toxicological Information

11(a-k) Information on Toxicological Effects: The following toxicity data has been determined for **Blast Furnace Gas** by using the information available for its components applied to the guidance on the preparation of an SDS under the GHS requirements of WHMIS:

Hazard Classifications	Hazard Category	Hazard Symbols	Signal Word	Hazard Statement
Acute Toxicity-Inhalation (covers Categories 1-4)	4 ^a		Warning	Harmful if inhaled.
Reproductive Toxicity (covers Categories 1A, 1B and 2)	1A ^b		Danger	May damage fertility or the unborn child.
Specific Target Organ Toxicity (STOT) Following Repeated Exposure (covers Categories 1 and 2)	1 ^j		Danger	Causes damage to lungs/heart.
Simple Asphyxiant	Single Category	No Pictogram	Warning	May displace oxygen and cause rapid suffocation

* NR Not Rated - Available data does not meet criteria for classification.

The Toxicological data listed below are presented regardless to classification criteria. Individual hazard classification categories where the toxicological information has met or exceeded a classification criteria threshold are listed above.

- a. No LC₅₀ or LD₅₀ has been established for **Blast Furnace Gas**. The following data has been determined for the components:
 - **Carbon Monoxide:** Rat LD₅₀ = 1300 ppm (REACH)
 - **Carbon Dioxide:** Rat LC₅₀ = 30000 – 50000 ppm

Mouse LC₅₀ = 2444 ppm
- b. No Skin (Dermal) Irritation data available for **Blast Furnace Gas** as a mixture or its individual components.
- c. No Eye Irritation data available for **Blast Furnace Gas** as a mixture or its individual components.
- d. No Skin (Dermal)/Respiratory Sensitization data available for **Blast Furnace Gas** as a mixture or its individual components.
- e. No Aspiration Hazard data available for **Blast Furnace Gas** as a mixture or its individual components.
- f. No Germ Cell Mutagenicity data available for **Blast Furnace Gas** as a mixture or its individual components.
- g. Carcinogenicity: IARC, NTP, and OSHA do not list **Blast Furnace Gas** or its components as carcinogens.
- h. No Toxic Reproduction data available for **Blast Furnace Gas** as a mixture or its individual components.
 - **Carbon Monoxide:** Reproductive Categories on EU are adopted for GHS because Human Fetal Death has resulted from exposure of CO to mothers bearing children.
- i. No Specific Target Organ Toxicity (STOT) following a Single Exposure data available for **Blast Furnace Gas** as a mixture or its individual components.
- j. No Specific Target Organ Toxicity (STOT) following Repeated Exposure data was available for **Blast Furnace Gas** as a whole. The following
- k. STOT following Repeated Exposure data was found for the components:
 - **Carbon Monoxide:** Damage to Heart by inhalation (REACH), Rat 72 wk Inhalation LOAEL = 200 ppm cardiac hypertrophy (REACH), Rat 13 wk inhalation NAOEL = 135 ppm

The above toxicity information was determined from available scientific sources to illustrate the prevailing posture of the scientific community. The scientific resources includes: The American Conference of Governmental Industrial Hygienist (ACGIH) Documentation of the Threshold Limit Values (TLVs) and Biological Exposure indices (BEIs) with Other Worldwide Occupational Exposure Values 2017, The International Agency for Research on Cancer (IARC), The National Toxicology Program (NTP) updated documentation, the World Health Organization (WHO) and other available resources, the International Uniform Chemical Information Database (IUCLID), European Union Risk Assessment Report (EU-RAR), Concise International Chemical Assessment Documents (CICAD), European Union Scientific Committee for Occupational Exposure Limits (EU-SCOEL), Agency for Toxic Substances and Disease Registry (ATSDR), Hazardous Substance Data Bank (HSDB), and International Programme on Chemical Safety (IPCS).

The following health hazard information is provided regardless to classification criteria and is based on the individual component(s):

Acute Effects by Component:

- **Nitrogen:** Simple asphyxiant
- **Carbon Monoxide:** Carbon monoxide reacts with hemoglobin to form carboxyhemoglobin. This form of hemoglobin has a reduced affinity to bind oxygen.
- **Carbon Dioxide:** Carbon dioxide has had lethal effects observed when atmospheric concentrations are increased above normal levels.
- **Hydrogen:** Simple asphyxiant

Delayed (chronic) Effects by Component:

- **Nitrogen:** Not Reported
- **Carbon Monoxide:** Human Fetal Death has resulted from exposure of CO to mothers bearing children.
- **Carbon Dioxide:** Not Reported
- **Hydrogen:** Not Reported

Section 12 - Ecological Information

12(a) Ecotoxicity (aquatic & terrestrial): No data available for the product, **Blast Furnace Gas** as a whole.

12(b) Persistence & Degradability: No Data Available

12(c) Bioaccumulative Potential: No Data Available

12(d) Mobility (in soil): No Data Available

12(e) Other Adverse Effects: None Known

Additional Information:

Hazard Category: No Category

Signal Word: No Signal Word

Hazard Symbol: No Hazard Symbol

Hazard Statement: No Hazard Statement

Section 13 - Disposal Considerations

Disposal: Waste should be disposed of in accordance with federal, provincial and local environmental regulations.

Container Cleaning and Disposal: Dispose of contents in accordance with federal, provincial and local regulations. Observe safe handling precautions.

Please note this information is for Blast Furnace Gas in its original form. Any alterations can void this information.

Section 14 - Transport Information

14 (a-g) Transportation Information:

Transport Dangerous Goods (TDG) regulates **Blast Furnace Gas** as a hazardous material. TDG classifies **Blast Furnace Gas** as **Compressed gas, flammable, n.o.s.** All federal, provincial and local laws and regulations that apply to the transport of this type of material must be adhered to.

Shipping Name: Compressed gas, flammable, n.o.s.

Packing Group: NA

Passenger Carrying Ship Index: Forbidden

Class/Division: 2.1

Special Provisions: 16

Hazard Label (s): Flammable Gas

UN No.: 1954

Limited Quantities Index: 0.125 L

Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index: Forbidden

Excepted Quantities (EQ): E0

ERAP Index: 3000

ERAP – Emergency Response Assistance Plan

Section 15 - Regulatory Information

Regulatory Information: The following listing of regulations relating to a Stelco product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities. This product and/or its constituents are subject to the following regulations:

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations and the SDS contains all the information required by the Hazardous Products Regulations.

Section 16 - Other Information

Prepared By: Stelco Inc.

Revision History:

8/27/2025- Update to comply with amendments to the Hazardous Products Regulations

6/30/2017 – Update to Stelco

2/10/2014 - Update to OSHA HAZ COM 2012

08/01/1985 – Original issue date

ABBREVIATIONS/ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	NFPA	National Fire Protection Association
BEIs	Biological Exposure Indices	NIF	No Information Found
CAS	Chemical Abstracts Service	NIOSH	National Institute for Occupational Safety and Health
CNS	Central Nervous System	NTP	National Toxicology Program
GI, GIT	Gastro-Intestinal, Gastro-Intestinal Tract	OSHA	Occupational Safety and Health Administration
IARC	International Agency for Research on Cancer	PPE	Personal Protective Equipment
LC50	Median Lethal Concentration	ppm	parts per million
LD50	Median Lethal Dose	RTECS	Registry of Toxic Effects of Chemical Substances
LD_{Lo}	Lowest Dose to have killed animals or humans	SCBA	Self-contained Breathing Apparatus
LEL	Lower Explosive Limit	STEL	Short-term Exposure Limit
µg/m³	microgram per cubic meter of air	TLV	Threshold Limit Value
mg/m³	milligram per cubic meter of air	TWA	Time-weighted Average
mppcf	million particles per cubic foot	UEL	Upper Explosive Limit
SDS	Safety Data Sheet	WHMIS	Workplace Hazardous Materials Information System
MOL	Ontario Ministry of Labour		

Blast Furnace Gas

Rev. 8/25

Disclaimer: This information is taken from sources or based upon data believed to be reliable. However, Stelco Inc. makes no warranty as to the absolute correctness or sufficiency of any of the foregoing or that additional or other measures may not be required under particular conditions.



The Steel Company of Canada

Blast Furnace Gas

Signal Word: DANGER

Symbols:



HAZARD STATEMENTS:

Extremely flammable gas.
Harmful if inhaled.

May displace oxygen and cause rapid suffocation
May damage fertility or the unborn child.

Causes damage to the heart through prolonged or repeated exposures.

PRECAUTIONARY STATEMENTS

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources.

Store in well-ventilated place.

Do not breathe gas. Use only outdoors or with adequate ventilation.

Wear protective gloves/protective clothing/eye protection/face protection.

Wash hands thoroughly after handling. Obtain, read and follow all safety instructions before use. If exposed, concerned, or feel unwell, get medical help/advice.

Do not eat, drink or smoke when using this product.

If inhaled: Remove person to fresh air and keep comfortable for breathing. Get medical help.

Store locked up.

Dispose of contents in accordance with federal, provincial and local regulations.

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