

Safety Data Sheet

MEDICAL MIX-

CO/METHANE/OXY/NIT .3/.3/21/78.4

Central McGowan

123 Roosevelt Road, St. Cloud, MN, 56301 800-569-1322

Section 1: Product and Company Identification

Central McGowan

123 Roosevelt Road, St. Cloud, MN, 56301

Product Code: MEDICAL MIX-CO/METHANE/OXY/NIT .3/.3/21/78.4

Synonyms: MMG T 4-MIX PUL

Recommended Use: Usage Restrictions:

Section 2: Hazards Identification



Hazard Classification: Reproductive Toxicity (Category 1.A)

Specific target organ toxicity (Repeated Exposure) (Category 1)

Gases Under Pressure

Hazard Statements: May damage fertility or the unborn child

Causes damage to organs through prolonged or repeated exposure

Contains gas under pressure; may explode if heated

Precautionary Statements

Response:

Prevention: Do not breathe dust/fume/gas/mist/ vapors/spray..

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

Do not handle until all safety precautions have been read and understood.

Obtain special instructions before use.

Wash thoroughly after handling.

Wear protective gloves, protective clothing, eye protection and face protection.

Call a poison center or doctor if you feel unwell.

If exposed or concerned: Get medical advice/attention.

Storage: Protect from sunlight.

Store in well-ventilated place.

Store locked up.

Disposal: Dispose of contents and/or container in accordance with applicable regulations.

Section 3: Composition/Information on Ingredients

	CAS#	Concentration
Carbon Monoxide	630-08-0	0.3%
Methane	74-82-8	0.3%
Oxygen	7782-44-7	21%
Nitrogen	7727-37-9	78.4%

	Chemical Substance	Chemical Family	Trade Names
Carbon Monoxide	CARBON MONOXIDE	Inorganic gases	CARBON OXIDE; CARBON OXIDE (CO); UN 1016; CO
Methane	METHANE, COMPRESSED GAS	Hydrocarbons, Aliphatic, Saturated	FIRE DAMP; MARSH GAS; METHYL HYDRIDE; NATURAL GAS; METHANE; UN 1971; R50; CH4
Oxygen	OXYGEN, COMPRESSED GAS	Inorganic gases	OXYGEN; DIOXYGEN; MOLECULAR OXYGEN; OXYGEN MOLECULE; PURE OXYGEN; UN 1072; O2
Nitrogen	NITROGEN, COMPRESSED GAS	Inorganic gases	DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN- 14; NITROGEN GAS; UN 1066; N2

Section 4: First Aid Measures

	Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Carbon Monoxide	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.	Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	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.	For inhalation, consider oxygen.
Methane	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	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.	For inhalation, consider oxygen.
Oxygen	None expected	None expected	Not likely route of exposure	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.	None
Nitrogen	Wash exposed skin with soap and water.	Flush eyes with plenty of water.	If a large amount is swallowed, get medical attention.	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.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media		Products of Combustion	Protection of Firefighters	
Carbon Monoxide	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon dioxide	 Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. 	

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	Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters		
Methane	Carbon dioxide, regular dry chemical Large fires: Use regular foam or flood with fine water spray.	Carbon monoxide, carbon dioxide, water	 Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece. Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece. 		
Oxygen	Non-flammable. Use extinguishing agent appropriate for the material which is burning. Use water in large quantities for fires involving oxygen.	Oxides of burning material	 Respiratory protection may be needed for frequent or heavy exposure. None 		
Nitrogen	Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat.	Non-flammable	 Respiratory protection may be needed for frequent or heavy exposure. 		

Section 6: Accidental Release Measures

	Personal Precautions	Environmental Precautions	Methods for Containment
Carbon Monoxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Methane	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid heat, flames, sparks and other sources of ignition.	Stop leak if possible without personal risk. Reduce vapors with water spray. Remove sources of ignition.
Oxygen	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering.	Avoid contact with combustible materials.	Stop leak if possible without personal risk.
Nitrogen	Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.	No significant effects from contamination expected.	Stop leak if possible without personal risk.

	Methods for Cleanup	Other Information
Carbon Monoxide	Stop leak, evacuate area. Wear protective equipment.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).
Methane	Not available	NOT AVAILABLE
Oxygen	Stop leak and ventilate	None
Nitrogen	N/A	N/A

Section 7: Handling and Storage

	Handling	Storage
Carbon Monoxide	Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.
Methane	Store and handle in accordance with all current regulations and standards. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Oxygen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.
Nitrogen	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101.	Keep separated from incompatible substances.

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Section 8: Exposure Controls/Personal Protection

	Exposure Guidelines
Carbon	CARBON MONOXIDE: 50 ppm (55 mg/m3) OSHA TWA 35 ppm (40 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30,
Monoxide	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
Methane	METHANE, COMPRESSED GAS: ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA METHANE:
	No occupational exposure limits established. ALIPHATIC HYDROCARBON GASES ALKANE (C1-C4): 1000 ppm ACGIH TWA
Oxygen	OXYGEN, COMPRESSED GAS: No occupational exposure limits established.
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

Engineering Controls

Handle only in fully enclosed systems.

·	Eye Protection	Skin Protection	Respiratory Protection
Carbon Monoxide	Eye protection not required, but recommended.	Protective clothing is not required. Wear appropriate chemical resistant gloves.	Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
Methane	Eye protection not required, but recommended.	Protective clothing is not required. Wear appropriate chemical resistant gloves.	Respiratory protection may be needed for frequent or heavy exposure. Any self-contained breathing apparatus with a full facepiece.
Oxygen	Eye protection not required, but recommended.	Protective clothing is not required. Protective gloves are not required.	Respiratory protection may be needed for frequent or heavy exposure.
Nitrogen	Eye protection not required, but recommended.	Protective clothing is not required. Protective gloves are not required.	Respiratory protection may be needed for frequent or heavy exposure.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

	Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor
Carbon Monoxide	Gas	Colorless	Colorless	N/A	Gas	Odorless
Methane	Gas	Colorless	Colorless	N/A	Gas	Odorless
Oxygen	Gas	Clear	Colorless	N/A	Gas	Odorless
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless

	Taste	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits
Carbon Monoxide	Tasteless	Flammable	Not available	1479.11 (log = 3.17) (estimated from water solubility)	1128-1202 F (609-650 C)	0.74
Methane	Tasteless	-369 F (-223 C)	Not available	724.44 (log = 2.87) (estimated from water solubility)	999 F (537 C)	15%
Oxygen	Tasteless	Not flammable	Not available	Not available	Nonflammable	Nonflammable
Nitrogen	Tasteless	Not flammable	Not available	Not available	Nonflammable	Nonflammable

Lower Explosive Boiling Point Limits	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity
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	Lower Explosive Limits	Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity
Carbon Monoxide	12.0-12.5%	-312.7 F (-191.5 C)	-326 F (-199 C)	760 mmHg @ -191 C gas; cannot be liquefied at room temperature	0.968 (Air=1)	Not applicable
Methane	5%	-260 F (-162 C)	-297 F (-183 C)	760 mmHg @ -161 C	0.555 (Air=1)	Not applicable
Oxygen	Nonflammable	-297 F (-183 C)	-360 F (-218 C)	760 mmHg @ -183 C	1.1 (Air=1)	Not applicable
Nitrogen	Nonflammable	-321 F (-196 C)	-346 F (-210 C)	760 mmHg @ -196 C	0.967 (Air=1)	Not applicable

	Water Solubility	pН	Odor Threshold	Evaporation Rate	Viscosity	Molecular Weight
Carbon Monoxide	2.3% @ 20 C	Not applicable	Not available	Not applicable	0.01657 cP @ 0 C	28.01
Methane	3.5% @ 17 C	Not applicable	Not available	Not applicable	0.01118 cP @ 27 C	16.04
Oxygen	3.2% @ 25 C	Not applicable	Not available	Not applicable	0.02075 cP @ 25 C	31.9988
Nitrogen	1.6% @ 20 C	Not applicable	Not available	Not applicable	0.01787 cP @ 27 C	28.0134

	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
Carbon Monoxide	C-0	1.250 g/L @ 0 C	Not available	100%	Not applicable	Soluble : Alcohol, benzene, acetic acid, ethyl acetate, chloroform, cuprous chloride solutions
Methane	C-H4	0.717 g/L @ 0 C	Not available	Not applicable	Not applicable	Soluble : Alcohol, ether, benzene, organic solvents
Oxygen	O2	1.309 g/L @ 25 C	Not available	Not applicable	Not applicable	Soluble : Alcohol
Nitrogen	N2	1.2506 g/L	Not available	100%	1	Soluble : Liquid ammonia

Section 10: Stability and Reactivity

	Stability	Conditions to Avoid	Incompatible Materials
Carbon Monoxide	Stable at normal temperatures and pressure.	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.	Oxidizing materials, halogens, metal oxides, metals, combustible materials, lithium
Methane	Stable at normal temperatures and pressure.	Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.	Halogens, oxidizing materials, combustible materials
Oxygen Stable at normal temperatures and pressure. Avoid contact with combustible materials. Protect from physical damage and heat. Containers may rupture or explode if exposed to he		Combustible materials, halo carbons, metals, bases, reducing agents, amines, metal salts, oxidizing materials, alkaline earth and alkali metals	
Nitrogen	Stable at normal temperatures and pressure.	Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.	Metals, oxidizing materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Carbon	Oxides of carbon	Will not polymerize.
Monoxide		

	Hazardous Decomposition Products Possibility of Hazardous Reactions	
Methane	Oxides of carbon	Will not polymerize.
Oxygen	Miscellaneous decomposition products	Will not polymerize.
Nitrogen	Oxides of nitrogen	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

	Oral LD50	Dermal LD50	Inhalation
Carbon Monoxide	LC50 Inhalation Gas. Rat 1807 ppm 4 hours	Not available	Changes in body temperature, changes in blood pressure, nausea, vomiting, chest pain, difficulty breathing, irregular heartbeat, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, loss of coordination, hearing loss, visual disturbances, eye damage, suffocation, blood disorders, convulsions, coma
Methane	Not available	Not available	Nausea, vomiting, difficulty breathing, irregular heartbeat, headache, drowsiness, fatigue, dizziness, disorientation, mood swings, tingling sensation, loss of coordination, suffocation, convulsions, unconsciousness, coma
Oxygen	Not established	Not established	Irritation, changes in body temperature, nausea, difficulty breathing, irregular heartbeat, dizziness, disorientation, hallucinations, mood swings, pain in extremities, tremors, lung congestion, convulsions
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

	Eye Irritation	Skin Irritation	Sensitization
Carbon Monoxide	No information on significant adverse effects	No information on significant adverse effects	Acute toxicity, Category 3, inhalation; H331: Toxic if inhaled. Reproductive toxicity, Category 1A; H360D: May damage the unborn child. Specific Target Organ Toxicity (repeated exposure), Category 1; H372: Causes damage to organs through prolonged or repeated exposure.
Methane	No information on significant adverse effects	No information on significant adverse effects	Difficulty breathing
Oxygen	No information on significant adverse effects	No information on significant adverse effects	No significant target effects reported.
Nitrogen	Contact with rapidly expanding gas may cause burns or frostbite	No information on significant adverse effects	Difficulty breathing

Chronic Effects

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Carbon Monoxide	Not available	Available.	Available.	No data
Methane	Not available	Not available	Not available	No data
Oxygen	Not known.	Available.	Available.	No data
Nitrogen	Not hazardous	Not available	Not available	No data

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Section 12: Ecological Information

Fate and Transport

	Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Carbon Monoxide	Fish toxicity: 75000 ug/L 1 day(s) LC100 (Mortality) Orangespotted sunfish (Lepomis humilis) Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Highly volatile from water.	Not available	Not expected to leach through the soil or the sediment.
Methane	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Not expected to leach through the soil or the sediment.
Oxygen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Low bioaccumulation	Not available
Nitrogen	Fish toxicity: Not available Invertibrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

Section 13: Disposal Considerations

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

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

Shipping Name	Compressed gas, n.o.s. (Carbon Monoxide, Methane, Oxygen, Nitrogen)
UN Number	UN1956
Hazard Class	2.2
Hazard Information	NonFlammable Gas

Individual Component Information

	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3	Not applicable	2.3; 2.1	Forbidden	25 kg	Toxic-Inhalation Hazard Zone D
Methane	Methane, compressed	UN1971	2.1	Not applicable	2.1	Forbidden	150 kg	N/A
Oxygen	Oxygen, compressed	UN1072	2.2	Not available	2.2; 5.1	75 kg or L	150 kg	N/A

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	Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable	2.2	75 kg or L	150 kg	N/A

Canadian Transportation of Dangerous Goods

	Shipping Name	UN Number	Class	Packing Group / Risk Group
Carbon Monoxide	Carbon monoxide, compressed	UN1016	2.3; 2.1	Not applicable
Methane	Methane, compressed	UN1971	2.1	Not applicable
Oxygen	Oxygen, compressed	UN1072	2.2; 5.1	Not applicable
Nitrogen	Nitrogen, compressed	UN1066	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations

	CERCLA Sections	SARA 355.30	SARA 355.40		
Carbon Monoxide	Not regulated.	Not regulated.	Not regulated.		
Methane	Not regulated.	Not regulated.	Not regulated.		
Oxygen	Not regulated.	Not regulated.	Not regulated.		
Nitrogen	Not regulated.	Not regulated.	Not regulated.		

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Carbon Monoxide	Yes	No	Yes	No	Yes
Methane	Yes	No	Yes	No	Yes
Oxygen	No	No	Yes	No	Yes
Nitrogen	Yes	No	No	No	Yes

SARA 372.65

Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

OSHA Process Safety

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Carbon Monoxide	Not regulated.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

State Regulations

	CA Proposition 65
Carbon Monoxide	WARNING: This product can expose you to chemicals including Carbon Monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.
Methane	Not regulated.
Oxygen	Not regulated.
Nitrogen	Not regulated.

Canadian Regulations

	WHMIS Classification
Carbon Monoxide	A, B1, D1A, D2A.
Methane	A, B1
Oxygen	A,C
Nitrogen	A

National Inventory Status

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US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)

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Carbon Monoxide	Listed on inventory.	Not listed.	Listed on inventory.
Methane	Listed on inventory.	Not listed.	Listed on inventory.
Oxygen	Listed on inventory.	Not listed.	Not determined.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

	NFPA Rating
Carbon Monoxide	HEALTH=2 FIRE=4 REACTIVITY=0
Methane	HEALTH=0 FIRE=4 REACTIVITY=0
Oxygen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=OX
Nitrogen	HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA

^{0 =} minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard