Safety Data Sheet



Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier	
Product Name	Methane (10%) in Argon (Balance)
Synonyms	P-10 (Nuclear Counter Mixture); P-10 Gas Mixture
Product Code	15041
1.2 Relevant identified us	ses of the substance or mixture and uses advised against
Relevant identified use(s)	I Semiconductor Uses
1.3 Details of the supplie	r of the safety data sheet
Manufacturer	I Air Liquide
	2700 Post Oak Blvd. Houston, TX 77056 United States www.us.airliquide.com sds@airliquide.com
Telephone (Technical) 1 713-896-2896
Telephone (Technical) ₁ 800-819-1704
1 4 Emergency telephon	e number

1.4 Emergency telephone number

Manufacturer	Ι	800-424-9300 - CHEMTREC
Manufacturer	Ι	+1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010] According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP	
DSD/DPD	

Compressed Gas - H280

030/020

Classification criteria not met

2.2 Label Elements

CLP

WARNING



Hazard statements | H280 - Contains gas under pressure; may explode if heated

Precautionary statements

	• •	P403 - Store in a well-ventilated place.			
DSD/DPD	Risk phrases No label element(s) required				
2.3 Other	Hazards				
CLP	I	According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.			
DSD/DPD	I	This product is not considered dangerous under the European Directive 67/548/EEC			

United States (US) According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification	of the substance	or mixture
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OSHA HCS 2012

| Compressed Gas - H280

2.2 Label elements OSHA HCS 2012

WARNING



Hazard statements	Contains gas under pressure; may explode if heated - H280
Precautionary statements	
Storage/Disposal	Store in a well-ventilated place P403
2.3 Other hazards	
OSHA HCS 2012	Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

Compressed Gas - A

2.2 Label elements WHMIS



I.

Compressed Gas - A

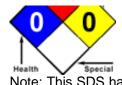
2.3 Other hazards WHMIS

In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information

NFPA





Note: This SDS has been developed for various gas mixtures with the composition of components within the ranges listed in Section 3(Composition/Information on Ingredients). All classifications provided are based on the highest end of the range provided for each component. Refer to the product label for information on the actual composition of the product.

Section 3 - Composition/Information on Ingredients

3.1 Substances

Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition				
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive
Argon	CAS:7440-37-1 EC Number:231-147-0	Balance	NDA	EU DSD/DPD: Not Classified EU CLP: Self Classified - Press. Gas - Comp, H280 OSHA HCS 2012: Press. Gas - Comp.
Methane	CAS:74-82-8 EC Number:200-812-7 EU Index:601-001-00-4	10%	NDA	EU DSD/DPD: Annex I - F+; R12 EU CLP: Annex VI - Flam. Gas 1, H220; Press. Gas, H280 OSHA HCS 2012: Flam. Gas 1; Press. Gas - Comp; Simp. Asphyx.

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation	Ι	First aid is not expected to be necessary if material is used under ordinary conditions and as recommended.		
Skin	I	Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.		
Eye	Ι	First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If irritation develops and persists, get medical attention.		
Ingestion	Ι	Ingestion is not considered a potential route of exposure.		
4.2 Most important symptoms and effects, both acute and delayed				
	I	Refer to Section 11 - Toxicological Information.		
4.3 Indication of any imr	ne	diate medical attention and special treatment needed		
Notes to Physician	I	All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. A potential health hazard associated with this gas is anoxia.		
4.4 Other information				
	Ι	Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO GASES WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing		

Apparatus must be worn. Victim(s) who experience any adverse effect after overexposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media $_{\perp}$	Use extinguishing agent suitable for type of surrounding fire.
Unsuitable Extinguishing	No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards	I	Containers may explode when heated. Ruptured cylinders may rocket.
Hazardous Combustion Products	I	No data available

5.3 Advice for firefighters

C F A V M F F r c C F F r c C F F F S S	Structural firefighters' protective clothing provides limited protection in fire situations DNLY; it is not effective in spill situations where direct contact with the substance is possible. Always wear thermal protective clothing when handling refrigerated/cryogenic liquids. Vear positive pressure self-contained breathing apparatus (SCBA). Move containers from fire area if you can do it without risk. FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 nile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions. FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out. FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; cing may occur. FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting afety devices or discoloration of tank. FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.
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Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

•	
Personal Precautions	Ventilate the area before entry. Do not walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Emergency Procedures	Keep unauthorized personnel away. Keep out of low areas. Stay upwind. Do not direct water at spill or source of leak. LARGE SPILL: Consider initial downwind evacuation for at least 500 meters (1/3 mile)
6.2 Environmental prec	autions
	Prevent entry into waterways, sewers, basements or confined areas.
6.3 Methods and mater	al for containment and cleaning up
Containment/Clean-up Measures	 Stop leak if you can do it without risk. Do not direct water at spill or source of leak. Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container. If possible, turn leaking containers so that gas escapes rather than liquid. Isolate area until gas has dispersed.

6.4 Reference to other sections

Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

Use only with adequate ventilation. Ventilate closed spaces before entering. Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Wear appropriate personal protective equipment, avoid direct contact. Cylinders should be firmly secured to prevent falling or being knocked-over. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Store in a cool, dry, well-ventilated place. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over.

7.3 Specific end use(s)

Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

	Exposure Limits/Guidelines									
	Result	ACGIH	Canada Ontario	Ireland	Israel	Portugal				
Methane (74-82-8)	TWAs	1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)	1000 ppm TWA	1000 ppm TWA	1000 ppm TWA (gas, listed under Aliphatic hydrocarbon gases: Alkane C1-4)	1000 ppm TWA [VLE- MP]				
		Ex	posure Limits/Gu	idelines (Con't.)						
			Result	Spain						
Methane (74-82-8)			TWAs	1000 ppm TWA ED]	VLA-					

Exposure Control Notations

Portugal

•Argon (7440-37-1): Simple Asphyxiants: (Simple Asphyxiant) Ireland

•Argon (7440-37-1): Simple Asphyxiants: (Asphyxiant)

•Methane (74-82-8): **Simple Asphyxiants:** (Asphyxiant)

Spain

•Argon (7440-37-1): Simple Asphyxiants: (simple asphyxiant)

8.2 Exposure controls

Engineering Measures/Controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment Respiratory

In case of insufficient ventilation, wear suitable respiratory equipment. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

		Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.
Eye/Face	I	Wear safety glasses.
Skin/Body	I	Wear leather gloves when handling cylinders.
Environmental Exposure Controls	I	Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless compressed gas with no odor.
Color	Colorless	Odor	Odorless
Odor Threshold	None		
General Properties			
Boiling Point	-185.9 C(-302.62 F) Argon	Melting Point	-189.2 C(-308.56 F) Argon
Decomposition Temperature	Data lacking	pH	Not relevant
Specific Gravity/Relative Density	Data lacking	Density	0.103 lb(s)/ft ³ @ 21.1 C(69.98 F) Argon
Water Solubility	0.056 % @ 0 C(32 F) Argon	Viscosity	Data lacking
Explosive Properties	Data lacking	Oxidizing Properties:	Data lacking
Volatility			
Vapor Pressure	Not relevant	Vapor Density	1.38 Air=1 Argon
Evaporation Rate	Not relevant		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Flammable gas.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

1 No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4 Conditions to avoid

| Excess heat.

10.5 Incompatible materials

Halogens, oxidizing materials, combustible materials.

10.6 Hazardous decomposition products

| Oxides of carbon.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

GHS Properties	Classification
Acute toxicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Aspiration Hazard	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Carcinogenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Germ Cell Mutagenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin corrosion/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-RE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-SE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Toxicity for Reproduction	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Respiratory sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Serious eye damage/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met

Potential Health Effects

Inhalation	
Acute (Immediate)	Under normal conditions of use, no health effects are expected.
Chronic (Delayed)	I No data available
Skin	
Acute (Immediate)	Under normal conditions of use, no health effects are expected.
Chronic (Delayed)	Under normal conditions of use, no health effects are expected.

Eye	
Acute (Immediate)	1 Under normal conditions of use, no health effects are expected.
Chronic (Delayed)	1 Under normal conditions of use, no health effects are expected.
Ingestion	
Acute (Immediate)	I Ingestion is not anticipated to be a likely route of exposure to this product.
Chronic (Delayed)	I Ingestion is not anticipated to be a likely route of exposure to this product.

Section 12 - Ecological Information

12.1 Toxicity

1 Material data lacking.

12.2 Persistence and degradability

1 Material data lacking.

12.3 Bioaccumulative potential

Material data lacking.

12.4 Mobility in Soil

1 Material data lacking.

12.5 Results of PBT and vPvB assessment

PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects

No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste	Dispose			r conta	liner	in a	ccordance	with	loc	al, r	egion	ial, n	atior	al, a	nd/or
	-		. /												. /

Packaging waste Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1956	Compressed gas, n.o.s. (Methane, Argon)	2.2	NDA	NDA
TDG	UN1956	COMPRESSED GAS N.O.S. (Methane, Argon)	2.2	NDA	NDA
IMO/IMDG	UN1956	COMPRESSED GAS, N.O.S. (Methane, Argon)	2.2	NDA	NDA
IATA/ICAO	UN1956	COMPRESSED GAS, N.O.S. (Methane, Argon)	2.2	NDA	NDA

14.6 Special precautions for | Cylinders should be transported in a secure position, in a well-ventilated vehicle. The

transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications | Pressure(Sudden Release of), Acute

Not relevant.

State Right To Know									
Component CAS MA NJ PA									
Argon	7440-37-1	Yes	Yes	Yes					
Methane	74-82-8	Yes	Yes	Yes					

Inventory										
Component	CAS	Canada DSL	Canada NDSL	China	EU EINECS	EU ELNICS				
Argon	7440-37-1	Yes	No	Yes	Yes	No				
Methane	74-82-8	Yes	No	Yes	Yes	No				
			Inventory (Co	n't.)						
Component	Component CAS TSCA									
Argon		744	40-37-1	,	Yes					
Methane		74-	-82-8		Yes					

Canada

bor		
Canada - WHMIS - Classifications of Substances		
• Argon	7440-37-1	A
Methane	74-82-8	A, B1
Canada - WHMIS - Ingredient Disclosure List		
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
nvironment		
Canada - CEPA - Priority Substances List		
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed

China

Environment China - Ozone Depleting Substances - First Schedule		
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed

China - Ozone Depleting Substances - Second Schedule			
• Argon	7440-37-1	Not Listed	
Methane	74-82-8	Not Listed	
China - Ozone Depleting Substances - Third Schedule			
• Argon	7440-37-1	Not Listed	
Methane	74-82-8	Not Listed	

Other		
China - Annex I & II - Controlled Chemicals Lists		
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
China - Dangerous Goods List		
• Argon	7440-37-1	(compressed or refrigerated liquid)
Methane	74-82-8	(compressed or refrigerated liquid)
China - Export Control List - Part I Chemicals		
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed

Europe

2008) - Annex VI - Table 3.2 - Classification		
	7440-37-1	Not Listed
	74-82-8	F+; R12
2008) - Annex VI - Table 3.2 - Concentration Li	mits	
	7440-37-1	Not Listed
	74-82-8	Not Listed
2008) - Annex VI - Table 3.2 - Labelling		
	7440-37-1	Not Listed
	74-82-8	F+ R:12 S:(2)-9-16-33
2008) - Annex VI - Table 3.2 - Notes - Substanc	es and Preparations	
	7440-37-1	Not Listed
	74-82-8	Not Listed
2008) - Annex VI - Table 3.2 - Safety Phrases		
	7440-37-1	Not Listed
	74-82-8	S:(2)-9-16-33
	74-02	-0

Germany

Environment Germany - TA Luft - Types and Classes			
• Argon	7440-37-1	Not Listed	
Methane	74-82-8	Not Listed	
Germany - Water Classification (VwVwS) - Annex 1			
		ID Number 1348, not	
• Argon	7440-37-1	considered hazardous to	
Prenaration Date: 22/December/2014	For	nat: ELLCI P/REACH Language: English	(115)

Methane	74-82-8	water ID Number 1343, not considered hazardous to water
Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes		
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
Germany - Water Classification (VwVwS) - Annex 3		
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed

Other Germany - Specifically Regulated Chemicals in TRGS			
• Argon	7440-37-1	Not Listed	
Methane	74-82-8	Not Listed	

Portugal

Other	
Portugal - Prohibited Substances	
• Argon	7440-37-1 Not Listed
Methane	74-82-8 Not Listed

United Kingdom

Environment United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Rele	eases to Air	
• Argon	7440-37-1	Not Listed
Methane	74-82-8	10000 kg

nited Kingdom - Workplace Exposure Limits (V	VELs) - Substances in Review	
Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
ed Kingdom - List of Dangerous Substances	s in Water	
Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed

United States

Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
J.S OSHA - Specifically Regulated Chemicals		
Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed

Environment

Argon 7440-37-1 Not Listed		U.S CAA (Clean Air Act) - 1990 Hazardous Air Pollutants
	7440-37-1 Not Listed	• Argon

Methane	74-82-8	Not Listed
 U.S CERCLA/SARA - Hazardous Substances and their Reportable Quantities Argon Methane 	7440-37-1 74-82-8	Not Listed Not Listed
 U.S CERCLA/SARA - Radionuclides and Their Reportable Quantities Argon Methane 	7440-37-1 74-82-8	Not Listed Not Listed
U.S CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs • Argon • Methane	7440-37-1 74-82-8	Not Listed Not Listed
U.S CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs • Argon • Methane	7440-37-1 74-82-8	Not Listed Not Listed
 U.S CERCLA/SARA - Section 313 - Emission Reporting Argon Methane 	7440-37-1 74-82-8	Not Listed Not Listed
U.S CERCLA/SARA - Section 313 - PBT Chemical Listing Argon Methane 	7440-37-1 74-82-8	Not Listed Not Listed

United States - California

J.S California - Proposition 65 - Carcinogens List		
Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
J.S California - Proposition 65 - Developmental Toxicity		
Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
J.S California - Proposition 65 - Maximum Allowable Dose Levels (MADL)		
Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
J.S California - Proposition 65 - No Significant Risk Levels (NSRL)		
Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
J.S California - Proposition 65 - Reproductive Toxicity - Female		
Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
J.S California - Proposition 65 - Reproductive Toxicity - Male		
Argon	7440-37-1	Not Listed
• Methane	74-82-8	Not Listed

United States - Pennsylvania

abor		
U.S Pennsylvania - RTK (Right to Know) - Environmental Hazard List		
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed
U.S Pennsylvania - RTK (Right to Know) - Special Hazardous Substance	es	
• Argon	7440-37-1	Not Listed
Methane	74-82-8	Not Listed

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

	I	H220 - Extremely flammable gas
		R12 - Extremely flammable.
Last Revision Date	I	22/December/2014
Preparation Date	I	22/December/2014
Disclaimer/Statement of Liability	I	To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.
Key to abbreviations		
NDA = No Data Available		