

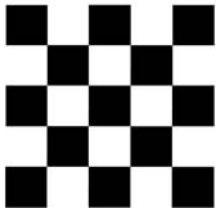
MATERIAL SAFETY DATA SHEET

PRODUCT NAME: SPECSHIELD 35H AND PLASMASHIELD 35H
(FORMERLY ARGOSHIELD GAS #35H)

1. Product and Company Identification



AS PACKAGED
AND DISTRIBUTED
BY



INDIANA OXYGEN COMPANY
6099 WEST CORPORATE WAY
INDIANAPOLIS, INDIANA 46278
PHONE 1-317-290-0003

Emergency Contact: Infotrak
1-800-535-5053

PRODUCT NAME: SPECSHIELD AND PLASMASHIELD #35H
(FORMERLY ARGOSHIELD GAS #35H)

CHEMICAL NAME: Hydrogen in Argon

COMMON NAMES/SYNONYMS: SpecShield, PlasmaShield #35H, ARGOSHIELD #35H,
Hydrogen (30-60%) in Argon

TDG (Canada) CLASSIFICATION: 2.1

WHMIS CLASSIFICATION: A, B1

PREPARED BY: Loss Control (908)464-8100/(905)501-1700

PREPARATION DATE: 6/1/95

REVIEW DATES: 11/8/02

2. Composition, Information on Ingredients

EXPOSURE LIMITS¹:

INGREDIENT	% VOLUME	PEL-OSHA ²	TLV-ACGIH ³	LD ₅₀ or LC ₅₀ Route/Species
Argon FORMULA: Ar CAS: 7440-37-1 RTECS #: CF2300000	40-70	None Established	Simple Asphyxiant	Not Available
Hydrogen FORMULA: H ₂ CAS: 1333-74-0 RTECS #: MW8900000	30-60	None Established	Simple Asphyxiant	Not Available

¹ Refer to individual state or provincial regulations, as applicable, for limits which may be more stringent than those listed here.

² As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

³ As stated in the ACGIH 2002 Threshold Limit Values for Chemical Substances and Physical Agents.

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

3. Hazards Identification

EMERGENCY OVERVIEW

Odorless, colorless **FLAMMABLE GAS**. Fire and explosion hazard. Rapid flame propagation and flashback possible. Avoid heat, sparks, and flame. Simple Asphyxiant - This product does not contain oxygen and may cause asphyxia if released in a confined area. Maintain oxygen levels above 19.5%. Contents under pressure. Use and store below 125 °F.

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ROUTE OF ENTRY:

Skin Contact No	Skin Absorption No	Eye Contact No	Inhalation Yes	Ingestion No
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HEALTH EFFECTS:

Exposure Limits No	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None reported		

Carcinogenicity: -- NTP: No IARC: No OSHA: No

EYE EFFECTS: None known.

SKIN EFFECTS: None known.

INGESTION EFFECTS: None known. Ingestion is unlikely as product is gas at room temperature.

INHALATION EFFECTS: Product is a simple asphyxiant. High concentrations may displace sufficient atmospheric oxygen to exclude an adequate supply of oxygen to the lungs. Effects of oxygen deficiency resulting from simple asphyxiants may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgment, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma, and death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

POTENTIAL ENVIRONMENTAL EFFECTS: Not expected to be toxic to fish and wildlife.

4. First Aid Measures

EYES: None required.

SKIN: None required.

INGESTION: None required

INHALATION: PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, and if breathing has stopped, administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

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5. Fire Fighting Measures

Conditions of Flammability: Flammable gas		
Flash point: Not Applicable	Method: Not Applicable	Autoignition Temperature: 1058 °F (570 °C)
LEL(%): 4 (Hydrogen)	UEL(%): 74.5 (Hydrogen)	
Hazardous combustion products: None		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: Can be ignited		

FIRE AND EXPLOSION HAZARDS: Extremely flammable gas mixture. Hydrogen concentrations greater than 2.93% in Ar, Kr, Ne, and Xe are considered flammable (CGA Pamphlet P-23, 1995). Easily ignited over a wide range of vapor/air concentrations. Flame propagation or flashback possible. Cylinder may vent rapidly or rupture violently when involved in a fire situation.

EXTINGUISHING MEDIA: Stop the flow of gas. Water, Dry chemical, Carbon dioxide.

FIRE FIGHTING INSTRUCTIONS: Approach fire with caution as high-temperature flame is practically invisible. If possible, stop the flow of gas. Inerting the atmosphere to reduce oxygen levels may extinguish flame, allowing capping of leaking container. Do not attempt this unless specifically trained. Reduce the rate of flow and inject an inert gas, if possible, before completely stopping the flow to prevent flashback. Do not extinguish the fire until the supply is shut off as otherwise an explosive reignition may occur. If the fire is extinguished and the flow of gas continues, use increased ventilation to prevent build-up of explosive atmosphere. Ventilation fans must be explosion proof. A water fog may be used to create ventilation. Use non-sparking tools to close container valves.

Use water spray to cool surrounding containers. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. Direct 500 GPM water stream onto containers above liquid level with remote monitors. Limit the number of personnel in proximity of fire and evacuate surrounding areas in all directions.

Firefighters should wear respiratory protection (SCBA) and full turnout or Bunker gear. Continue to cool fire-exposed cylinders until well after flames are extinguished.

6. Accidental Release Measures

Eliminate all ignition sources. No smoking, flares, sparks, or flames in hazard area. Stop or control leak if it can be done without risk. Evacuate all personnel from affected area. Use appropriate protective equipment (See Section 8). Provide maximum explosion-proof ventilation and ventilate enclosed areas. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, remove to outside if it can be done without risk and contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

7. Handling and Storage

Electrical Classification: Class 1, Group B (as hydrogen)

Earth-ground and bond all lines and equipment associated with the hydrogen system. All equipment should be non-sparking and explosion proof. Post "NO SMOKING" signs in use and storage areas. There should be no sources of ignition in areas where this product is being used or stored. This gas mixture is non-corrosive and may be used with all common structural materials. High pressure hydrogen releases often ignite with no apparent source of ignition possibly via static electricity.

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Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve protection outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure-reducing regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Protect cylinders from physical damage. Do not insert any object (i.e.: screwdriver) into valve cap openings as this can damage the valve causing leakage.

Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Outside or detached storage is preferred. Isolate from oxygen, halogens, and other oxidizing materials. Do not allow the temperature where cylinders are stored to exceed 125 °F (52 °C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.

For additional recommendations, consult Compressed Gas Association Pamphlets P-1, P-14, G-5, and Safety Bulletin SB-2.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. Exposure Controls, Personal Protection

ENGINEERING CONTROLS: Use local exhaust and general ventilation systems to prevent build up of flammable concentrations. Small quantities can be handled in forced ventilation hoods. If product is handled routinely where the potential for leaks exists, all electrical equipment must be rated for use in potentially flammable atmospheres. Consult the National Electrical Code for details.

EYE/FACE PROTECTION: Safety goggles or glasses as appropriate for the job.

SKIN PROTECTION: Protective gloves as necessary for the job.

RESPIRATORY PROTECTION: For emergency release use a positive pressure NIOSH approved air-supplying respirator systems (SCBA or airline/escape bottle) using at a minimum Grade D air.

OTHER/GENERAL PROTECTION: Safety shoes.

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Not Available	
Vapor density	: 0.054-0.103 lb/cu.ft	
Evaporation point	: Not Available	
Boiling point	: Not Available	
Freezing point	: Not Available	
pH	: Not Applicable	
Specific gravity (Air=1)	: 0.725-1.38	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Slight	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas	

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10. Stability and Reactivity

STABILITY: Stable. Avoid heat, sparks, and flame.

INCOMPATIBLE MATERIALS/CONDITIONS: Hydrogen is incompatible with oxidizers, halogens, and other oxidizing materials. Avoid heat, sparks, and flame.

HAZARDOUS POLYMERIZATION: Does not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

11. Toxicological Information

SKIN AND EYE: Adverse effects are not expected.

INHALATION: Product is a simple asphyxiant. Maintain atmospheric oxygen at or above 19.5%.

OTHER: Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

12. Ecological Information

Product does not contain Class I or Class II ozone depleting substances. Not toxic. Will not bioconcentrate.

13. Disposal Considerations

Do not attempt to dispose of residual 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 BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Compressed gas, flammable, n.o.s. (Hydrogen in Argon)	Compressed gas, flammable n.o.s. (Hydrogen)
HAZARD CLASS:	2.1	2.1
IDENTIFICATION NUMBER:	UN 1954	UN 1954
SHIPPING LABEL:	FLAMMABLE GAS	FLAMMABLE GAS

15. Regulatory Information

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES:

Fire Hazard

Sudden Release of Pressure Hazard

MSDS: G-424

Revised: 11/8/02

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SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product does not contain toxic chemicals subject to reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

U.S. TSCA/Canadian DSL: All ingredients are listed on the U.S. Toxic Substances Control Act (TSCA) inventory or exempt from listing and on the Canadian Domestic Substance List (DSL).

California Proposition 65: This product does not contain ingredient(s) known to the State of California to cause cancer or reproductive toxicity.

16. Other Information

NFPA HAZARD CODES	HMIS HAZARD CODES	RATINGS SYSTEM
Health: 0	Health: 0	0 = No Hazard
Flammability: 4 (as hydrogen)	Flammability: 4 (as hydrogen)	1 = Slight Hazard
Instability: 0	Reactivity: 0	2 = Moderate Hazard
		3 = Serious Hazard
		4 = Severe Hazard

Note: The Reactivity Hazard Rating is based on the 2nd Edition of the National Paint and Coatings Association's (NPCA's) Hazardous Materials Identification System (HMIS®). Hazard ratings were based on the best available information at the time of the review. Ratings will be re-assigned in accordance with Compressed Gas Association (CGA) guidelines as published in the future edition of CGA Pamphlet P-19.

ACGIH	American Conference of Governmental Industrial Hygienists
DOT	Department of Transportation
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
WHMIS	Workplace Hazardous Materials Information System

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder which has not been filled by the owner or with his/her (written) consent is a violation of transportation regulations.

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