Safety Data Sheet

Propane

SECTION 1

Identification

GHS product identifier	Propane
Chemical name	propane
Other means of identification	Propyl hydride; n-Propane; Dimethyl methane; E 944; HC-290; R290; PROPYL HYDRID; Normal propane; liquefied petroleum gas; Propagas; n-propana
Product type	Liquefied gas.
Product use	Synthetic/Analytical chemistry.
Synonym	Propyl hydride; n-Propane; Dimethyl methane; E 944; HC-290; R290; PROPYL HYDRID; Normal propane; liquefied petroleum gas; Propagas; n-propana
SDS #	001045
Supplier's details	EspriGas 500 Northridge Road, Suite 200 Atlanta, GA 30350 1.800.720.1563 Inside the US: 1-800-424-9300 (Chemtrec, 24 hours) Outside the US: 1-703-527-3887 (Chemtrec, 24 hours)
24-hour telephone	EspriGas Customer Support Center: 1.800.720.1563

SECTION 2

Hazards Identification

OSHA/HCS status	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	FLAMMABLE GASES – Category 1A GASES UNDER PRESSURE – Liquefied gas

GHS Label Elements

Hazard pictograms	Flame, Gas cylinder
Signal word	Danger
Hazard statements	H220 – Extremely flammable gas. H280 – Contains gas under pressure; may explode if heated. May cause frostbite. May displace oxygen and cause rapid suffocation. May form explosive mixtures with air.

Precautionary Statements

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General	Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.
Prevention	P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response	P377 – Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 – In case of leakage, eliminate all ignition sources.
Storage	P410 + P403 – Protect from sunlight. Store in a well-ventilated place.
Disposal	Not applicable.
Hazards not otherwise classified	Liquid can cause burns similar to frostbite.
Hazards identified when used	No known significant effects or critical hazards.

SECTION 3

Composition / Information on Ingredients

Substance/mixture	Substance
Chemical name	propane
Other means of identification	Propyl hydride; n-Propane; Dimethyl methane; E 944; HC-290; R290; PROPYL HYDRID; Normal propane; liquefied petroleum gas; Propagas; n-propana
Product code	001045

Ingredient name	%	CAS number
Propane	100	74-98-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation. There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. Occupational exposure limits, if available, are listed in Section 8.

SECTION 4

First Aid Measures

Description of Necessary First Aid Measures

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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Skin contact	Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area.
Ingestion	Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most Important Symptoms/Effects, Acute and Delayed

Potential Acute Health Effects

Eye contact	Liquid can cause burns similar to frostbite.
Inhalation	No known significant effects or critical hazards.
Skin contact	Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
Frostbite	Try to warm up the frozen tissues and seek medical attention.
Ingestion	Ingestion of liquid can cause burns similar to frostbite.

Over-Exposure Signs/Symptoms

Eye contact	Adverse symptoms may include the following: frostbite.
Inhalation	No specific data.
Skin contact	Adverse symptoms may include the following: frostbite.
Ingestion	Adverse symptoms may include the following: frostbite.

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11).

SECTION 5

Fire-Fighting Measures

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion.

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Hazardous thermal decomposition products	Decomposition products may include the following materials: carbon dioxide; carbon monoxide.
Special protective actions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

SECTION 6

Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

For non-emergency personnel	Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment.
For emergency responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in “For non-emergency personnel.”
Environmental precautions	Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and Materials for Containment and Cleaning Up

Small spill	Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
Large spill	Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

SECTION 7

Handling and Storage

Precautions for Safe Handling

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Protective measures

Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52°C (125°F).

SECTION 8

Exposure Controls / Personal Protection

Occupational Exposure Limits

Ingredient name	Exposure limits
Propane	NIOSH REL (United States, 10/2020): TWA 10 hours: 1000 ppm; TWA 10 hours: 1800 mg/m^3. CAL OSHA PEL (United States, 1/2025): TWA 8 hours: 1800 mg/m^3; TWA 8 hours: 1000 ppm. OSHA PEL (United States, 5/2018): TWA 8 hours: 1000 ppm; TWA 8 hours: 1800 mg/m^3. OSHA PEL 1989 (United States, 3/1989): TWA 8 hours: 1000 ppm; TWA 8 hours: 1800 mg/m^3. ACGIH TLV (United States, 1/2025): Oxygen depletion [asphyxiant]; Explosive potential.

Biological exposure indices: No exposure indices known.

Appropriate engineering controls

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual Protection Measures

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Hygiene measures	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with sideshields.
Hand protection	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body protection	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
Other skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
Thermal hazards	If there is a risk of contact with the liquid, all protective equipment worn should be suitable for use with extremely low temperature materials.

SECTION 9

Physical and Chemical Properties

Physical state	Gas. [Liquefied gas.]
Color	Colorless.
Odor	Odorless.
Odor threshold	Not available.
pH	Not applicable.
Melting point/freezing point	-187.6°C (-305.7°F)
Boiling point or initial boiling point and boiling range	-42°C (-43.6°F)

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Flash point	Closed cup: -104°C (-155.2°F) Open cup: -104°C (-155.2°F)
Evaporation rate	Not available.
Flammability (solid, gas)	Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.
Lower and upper explosive (flammable) limits	Lower: 1.8% Upper: 8.4%
Vapor pressure	109 (psig)
Relative vapor density	1.6 [Air = 1]
Specific volume (ft^3/lb)	2.3641
Gas density (lb/ft^3)	0.423 (25°C / 77 to °F)
Relative density	Not applicable.
Solubility in water	0.0244 g/l
Partition coefficient: n-octanol/water	1.09
Auto-ignition temperature	287°C (548.6°F)
Decomposition temperature	Not available.
Flow time (ISO 2431)	Not available.
Molecular weight	44.11 g/mole
Aerosol product – heat of combustion	-46012932 J/kg

SECTION 10

Stability and Reactivity

Reactivity	May form explosive mixtures with air.
Chemical stability	The product is stable.
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.
Incompatible materials	Oxidizers.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	Under normal conditions of storage and use, hazardous polymerization will not occur.

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SECTION 11

Toxicological Information

Information on Toxicological Effects

Acute toxicity – conclusion/summary	Not available.
Skin corrosion/irritation – conclusion/summary	Not available.
Serious eye damage/eye irritation – conclusion/summary	Not available.
Respiratory corrosion/irritation – conclusion/summary	Not available.
Respiratory or skin sensitization – skin	Not available.
Respiratory or skin sensitization – respiratory	Not available.
Germ cell mutagenicity – conclusion/summary	Not available.
Carcinogenicity – conclusion/summary	Not available.
Reproductive toxicity – conclusion/summary	Not available.
Specific target organ toxicity (single exposure)	Not available.
Specific target organ toxicity (repeated exposure)	Not available.
Aspiration hazard	Not available.
Information on the likely routes of exposure	Not available.

Potential Acute Health Effects

Eye contact	Liquid can cause burns similar to frostbite.
Inhalation	No known significant effects or critical hazards.
Skin contact	Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.
Ingestion	Ingestion of liquid can cause burns similar to frostbite.

Symptoms Related to the Physical, Chemical and Toxicological Characteristics

Eye contact	Adverse symptoms may include the following: frostbite.

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Inhalation No specific data.

Skin contact Adverse symptoms may include the following: frostbite.

Ingestion Adverse symptoms may include the following: frostbite.

Delayed and Immediate Effects and Also Chronic Effects from Short and Long Term Exposure

Short term exposure – potential immediate effects Not available.

Short term exposure – potential delayed effects Not available.

Long term exposure – potential immediate effects Not available.

Long term exposure – potential delayed effects Not available.

Potential chronic health effects – conclusion/summary Not available.

General No known significant effects or critical hazards.

Carcinogenicity No known significant effects or critical hazards.

Mutagenicity No known significant effects or critical hazards.

Reproductive toxicity No known significant effects or critical hazards.

Numerical measures of toxicity – acute toxicity estimates N/A

SECTION 12

Ecological Information

Toxicity – conclusion/summary Not available.

Persistence and degradability – conclusion/summary Not available.

Bioaccumulative Potential

Product/ingredient name	LogPow	BCF	Potential
Propane	1.09	–	Low

Mobility in soil – soil/water partition coefficient 8.6207 Koc

Other adverse effects No known significant effects or critical hazards.

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SECTION 13

Disposal Considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

SECTION 14

Transport Information

Regulatory Info	UN Number	Proper Shipping Name	Class	Packing Group
DOT	UN1978	Propane	2.1	–
TDG	UN1978	PROPANE	2.1	–
Mexico	UN1978	PROPANO	2.1	–
IMDG	UN1978	PROPANE	2.1	–
IATA	UN1978	Propane	2.1	–

Environmental hazards: No, for all of the above (DOT, TDG, Mexico, IMDG, IATA).

Additional Information

DOT – limited quantity

Yes.

DOT – packaging instruction

Exceptions: 306. Non-bulk: 304. Bulk: 314, 315.

DOT – quantity limitation

Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg.

DOT – special provisions

19, T50, N95

TDG – classification

Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13–2.17 (Class 2).

TDG – explosive limit and limited quantity index

0.125

TDG – ERAP index

3000

TDG – passenger carrying vessel index

110

TDG – passenger carrying road or rail index

Forbidden

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TDG – special provisions	88
IMDG – emergency schedules	F-D, S-U
IMDG – special provisions	392
IATA – quantity limitation	Passenger and Cargo Aircraft: Forbidden. Packaging instructions: Forbidden. Cargo Aircraft Only: 150 kg. Packaging instructions: 200. Limited Quantities – Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
IATA – special provisions	A1
Special precautions for user	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Transport in bulk according to IMO instruments	Not available.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

SECTION 15

Regulatory Information

U.S. Federal Regulations

TSCA 8(a) CDR exempt/partial exemption	Not determined.
Clean Air Act (CAA) 112 regulated flammable substances	propane
TSCA 12(b) – chemical export notification	Not applicable.
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	Not listed
Clean Air Act Section 602 Class I Substances	Not listed
Clean Air Act Section 602 Class II Substances	Not listed
DEA List I Chemicals (Precursor Chemicals)	Not listed
DEA List II Chemicals (Essential Chemicals)	Not listed
SARA 302/304 – composition/information on ingredients	No products were found.

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SARA 304 RQ	Not applicable.
SARA 311/312 classification	Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State Regulations

Massachusetts	This material is listed.
New York	This material is not listed.
New Jersey	This material is listed.
Pennsylvania	This material is listed.
California Prop. 65	This product does not require a Safe Harbor warning under California Prop. 65.

International Regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals	Not listed.
Montreal Protocol	Not listed.
Stockholm Convention on Persistent Organic Pollutants	Not listed.
Rotterdam Convention on Prior Informed Consent (PIC)	Not listed.
UNECE Aarhus Protocol on POPs and Heavy Metals	Not listed.

Inventory List

Australia	This material is listed or exempted.
Canada	This material is listed or exempted.
China	This material is listed or exempted.
Eurasian Economic Union	Russian Federation inventory: This material is listed or exempted.
Japan	Japan inventory (CSCL): This material is listed or exempted. Japan inventory (ISHL): This material is listed or exempted.
New Zealand	This material is listed or exempted.
Philippines	This material is listed or exempted.
Republic of Korea	This material is listed or exempted.
Taiwan	This material is listed or exempted.
Thailand	This material is listed or exempted.
Turkey	This material is listed or exempted.

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United States	This material is active or exempted.
Viet Nam	This material is listed or exempted.

SECTION 16

Other Information

Date of issue/date of revision	12/29/2025
Date of previous issue	12/29/2025
Version	3.02

Hazard and Instability Classification Ratings

System	Health	Flammability	Physical Hazards / Instability	Special
HMIS® (U.S.A.)	2	4	0	–
NFPA 704 (U.S.A.)	2	4	0	–

Caution: HMIS® ratings are based on a 0–4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc. The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

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Procedure Used to Derive the Classification

Classification	Justification
FLAMMABLE GASES – Category 1A	Expert judgment
GASES UNDER PRESSURE – Liquefied gas	Expert judgment

Key to Abbreviations

ATE = Acute Toxicity Estimate; BCF = Bioconcentration Factor; GHS = Globally Harmonized System of Classification and Labelling of Chemicals; IATA = International Air Transport Association; IBC = Intermediate Bulk Container; IMDG = International Maritime Dangerous Goods; LogPow = logarithm of the octanol/water partition coefficient; MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978; UN = United Nations.

References

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The information below is given to call attention to the issue of “Naturally occurring radioactive materials”. Although Radon-222 levels in the product represented by this SDS do not present any direct Radon exposure hazard, customers should be aware of the potential for Radon daughter build up within their processing systems, whatever the source of their product streams. Radon-222 is a naturally occurring radioactive gas which can be a contaminant in natural gas. During subsequent processing, Radon tends to be concentrated in Liquefied Petroleum Gas streams and in product streams having a similar boiling point range. Industry experience has shown that this product may contain small amounts of Radon-222 and its radioactive decay products, called Radon “daughters”. The actual concentration of Radon-222 and radioactive daughters in the delivered product is dependent on the geographical source of the natural gas and storage time prior to delivery. Process equipment (i.e. lines, filters, pumps and reaction units) may accumulate significant levels of radioactive daughters and show a gamma radiation reading during operation. A potential external radiation hazard exists at or near any pipe valve or vessel containing a Radon enriched stream, or containing internal deposits of radioactive material due to the transmission of gamma radiation through its wall. Field studies reported in the literature have not shown any conditions that subject workers to cumulative exposures in excess of general population limits. Equipment emitting gamma radiation should be presumed to be internally contaminated with alpha emitting decay products which may be a hazard if inhaled or ingested. Protective equipment such as coveralls, gloves, and respirator (NIOSH/MHSA approved for high efficiency particulates and radionuclides, or supplied air) should be worn by personnel entering a vessel or working on contaminated process equipment to prevent skin contamination, ingestion, or inhalation of any residues containing alpha radiation. Airborne contamination may be minimized by handling scale and/or contaminated materials in a wet state.

Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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