|  |  |
| --- | --- |
| Metro Welding Supply Corp. logo | Safety Data Sheet  Phosphine |
|  |

# Section 1: Product and Company Identification

**Metro Welding Supply Corp.**

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Detroit, MI 48223
  
(313) 834-1660 [phone]
  
(313) 835-3562 [fax]
  
http://www.metrowelding.com/

Product Code: Phosphine

# Section 2: Hazards Identification



**Danger**

## Hazard Classification:

Acute Gas Inhale Toxicity (Category 1)

Acute Vapor Inhale Toxicity (Category 4)

Aspiration Hazard (Category 1)

Flammable (Category 1)

Flammable Aerosol (Category 1)

Gases Under Pressure

## Hazard Statements:

Contains gas under pressure; may explode if heated

Extremely flammable aerosol

Extremely flammable gas

Fatal if inhaled

Harmful if inhaled

May be fatal if swallowed and enters airways

## Precautionary Statements

**Prevention:**

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

[In case of inadequate ventilation] wear respiratory protection.

Use only outdoors or in a well-ventilated area.

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Pressurized container: Do not pierce or burn, even after use.

Do not spray on an open flame or other ignition source.

**Response:**

Eliminate all ignition sources if safe to do so.

Immediately call a poison center or doctor.

Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

Do NOT induce vomiting.

Specific treatment is urgent.

If swallowed: Rinse mouth. Do NOT induce vomiting.

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

**Storage:**

Store in a well-ventilated place. Keep container tightly closed.

Protect from sunlight.

Store locked up.

Do not expose to temperatures exceeding 50C/122F.

**Disposal:**

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

# Section 3: Composition/Information on Ingredients

| CAS # |
| --- |
| 7803-51-2 |

| Chemical Substance | Chemical Family | Trade Names |
| --- | --- | --- |
| PHOSPHINE | hydrides | HYDROGEN PHOSPHIDE; CELPHOS; DELICIA; DETIA; DETIA GAS EX-B; GASEX-B; PHOSPHORUS TRIHYDRIDE; RCRA P096; UN 2199 |

# Section 4: First Aid Measures

| Skin Contact | Eye Contact | Ingestion | Inhalation | Note to Physicians |
| --- | --- | --- | --- | --- |
| If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention. | Contact with liquid: Immediately 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. Get immediate medical attention. | None |

# Section 5: Fire Fighting Measures

| Suitable Extinguishing Media | Products of Combustion | Protection of Firefighters |
| --- | --- | --- |
| Let burn unless leak can be stopped immediately. Large fires: Use regular foam or flood with fine water spray. | Hydrogen, forms explosive mixtures with air | * Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode. Use chemical resistant suit. * Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode. Use chemical resistant suit. |

# Section 6: Accidental Release Measures

| Personal Precautions | Environmental Precautions | Methods for Containment |
| --- | --- | --- |
| 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. |

| Methods for Cleanup | Other Information |
| --- | --- |
| Stop leak, evacuate area, and contact emergency personnel. | Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RG (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA). |

# Section 7: Handling and Storage

| Handling | Storage |
| --- | --- |
| Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). | Keep separated from incompatible substances. |

# Section 8: Exposure Controls/Personal Protection

| Exposure Guidelines |
| --- |
| PHOPHINE: 0.3 ppm (0.4 mg/m3) OSHA TWA 1 ppm (1 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 0.3 ppm ACGIH TWA 1 ppm ACGIH STEL 0.3 ppm (0.4 mg/m3) NIOSH recommended TWA 10 hour(s) 1 ppm (1 mg/m3) NIOSH recommended STEL |

## Engineering Controls

Handle only in fully enclosed systems.

| Eye Protection | Skin Protection | Respiratory Protection |
| --- | --- | --- |
| For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. | For the gas: Wear appropriate chemical resistant clothing. For the liquid: Wear appropriate protective, cold insulating clothing. | Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode. Use chemical resistant suit. |

## 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 | Taste |
| --- | --- | --- | --- | --- | --- | --- |
| Gas | Clear | Colorless | N/A | Gas, liquid | Unpleasant odor, fishy odor, garlic odor | N/A |

| Flash Point | Flammability | Partition Coefficient | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
| --- | --- | --- | --- | --- | --- |
| Flammable | Not available | Not available | 212 F (100 C) | 0.98 | 0.01 |

| Boiling Point | Freezing Point | Vapor Pressure | Vapor Density | Specific Gravity | Water Solubility | pH | Odor Threshold | Evaporation Rate | Viscosity |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| -126 F (-87.7 C) | -208.3 F (-133.5 C) | 41.9 bar @ 20 C | 1.17 (Air=1) | 77°F (25°C) and 1 atm: 1.18 | 26% @ 17 C | Neutral in solution | 0.021 ppm | Not applicable | Not available |

| Molecular Weight | Molecular Formula | Density | Weight per Gallon | Volatility by Volume | Volatility | Solvent Solubility |
| --- | --- | --- | --- | --- | --- | --- |
| 34 | P-H3 | Not available | Not available | 100% | Not applicable | Soluble: Alcohol, ether, cuprous chloride solutions, cyclohexanol |

# Section 10: Stability and Reactivity

| Stability | Conditions to Avoid | Incompatible Materials |
| --- | --- | --- |
| May ignite on exposure to air. | May ignite on exposure to air. | Acids, halogens, oxidizing materials, halo carbons, metal nitrates, nitrous oxide, potassium, ammonia |

| Hazardous Decomposition Products | Possibility of Hazardous Reactions |
| --- | --- |
| Oxides of phosphorus | Will not polymerize. |

# Section 11: Toxicology Information

## Acute Effects

| Oral LD50 | Dermal LD50 | Inhalation |
| --- | --- | --- |
| LC50, 1 hr, rat = 20 ppm | Not available | Toxic. irritation, garlic odor, tearing, nausea, vomiting, diarrhea, stomach pain, difficulty breathing, irregular heartbeat, headache, drowsiness, symptoms of drunkenness, fainting, tingling sensation, visual disturbances, dilated pupils, bluish skin color, lung congestion, kidney damage, liver damage, paralysis, convulsions, coma, death |

| Eye Irritation | Skin Irritation | Sensitization |
| --- | --- | --- |
| Liquid: frostbite, blurred vision | Liquid: blisters, frostbite | Potentially fatal if inhaled, respiratory tract irritation, central nervous system depression |

## Chronic Effects

| Carcinogenicity | Mutagenicity | Reproductive Effects | Developmental Effects |
| --- | --- | --- | --- |
| Not available | Available. | Not available | No data |

# Section 12: Ecological Information

## Fate and Transport

|  |  |  |  |
| --- | --- | --- | --- |
| Eco toxicity | Persistence / Degradability | Bioaccumulation / Accumulation | Mobility in Environment |
| 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

|  |
| --- |
| Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): P096. |

# Section 14: Transportation Information

## U.S. DOT 49 CFR 172.101

| 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 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Phosphine | UN2199 | 2.3 | Not applicable | 2.3; 2.1 | Forbidden | Forbidden | Toxic-Inhalation Hazard Zone A |

## Canadian Transportation of Dangerous Goods

|  |  |  |  |
| --- | --- | --- | --- |
| Shipping Name | UN Number | Class | Packing Group / Risk Group |
| Phosphine | UN2199 | 2.3; 2.1 | Not applicable |

# Section 15: Regulatory Information

## U.S. Regulations

|  |  |  |
| --- | --- | --- |
| CERCLA Sections | SARA 355.30 | SARA 355.40 |
| 100 LBS RQ | 500 LBS TPQ | 100 LBS RQ |

## SARA 370.21

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Acute | Chronic | Fire | Reactive | Sudden Release |
| Yes | No | Yes | Yes | Yes |

## SARA 372.65

|  |
| --- |
| PHOSPHINE |

## OSHA Process Safety

|  |
| --- |
| 100 LBS TQ |

## State Regulations

|  |
| --- |
| CA Proposition 65 |
| Not regulated. |

## Canadian Regulations

|  |
| --- |
| WHMIS Classification |
| ABD1 |

## National Inventory Status

|  |  |  |
| --- | --- | --- |
| US Inventory (TSCA) | TSCA 12b Export Notification | Canada Inventory (DSL/NDSL) |
| Listed on inventory. | Not listed. | Not determined. |

# Section 16: Other Information

|  |
| --- |
| NFPA Rating |
| HEALTH=4 FIRE=4 REACTIVITY=2 |

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