|  |  |
| --- | --- |
| Metro Welding Supply Corp. logo | Safety Data SheetNitrogen Dioxide |
|  |

# Section 1: Product and Company Identification

**Metro Welding Supply Corp.**

12620 Southfield Road

Detroit, MI 48223

(313) 834-1660 [phone]

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http://www.metrowelding.com/

Product Code: Nitrogen Dioxide

# Section 2: Hazards Identification



**Danger**

## Hazard Classification:

Acute Oral Toxicity (Category 4)

Aspiration Hazard (Category 1)

Carcinogenicity (Category 2)

Corrosive To Metal (Category 1)

Eye Effects (Category 2.B)

Gases Under Pressure

Oxidizing Gas (Category 1)

Reproductive Toxicity (Category 2)

## Hazard Statements:

Causes eye irritation

Contains gas under pressure; may explode if heated

Harmful if swallowed

May be corrosive to metals

May be fatal if swallowed and enters airways

May cause or intensify fire; oxidizer

Suspected of causing cancer

Suspected of damaging fertility or the unborn child

## Precautionary Statements

**Prevention:**

Wash thoroughly after handling.

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

Keep and store away from clothing and combustible materials.

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

Keep reduction valves/valves and fittings free from oil and grease.

Keep only in original container.

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

Obtain special instructions before use.

**Response:**

Immediately call a poison center or doctor.

In case of fire: Stop leak if safe to do so.

Do NOT induce vomiting.

Absorb spillage to prevent material damage.

If swallowed: Rinse mouth. Do NOT induce vomiting.

If exposed or concerned: Get medical advice/attention.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Storage:**

Store in corrosive resistant container with a resistant inner liner.

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 # |
| --- |
| 10102-44-0 |

| Chemical Substance | Chemical Family | Trade Names |
| --- | --- | --- |
| NITROGEN DIOXIDE | Inorganic nitrogen compound / nitrogen oxide / inorganic gas | Dinitrogen tetroxide
Dinitrogen tetroxide, liquefied
Nitrogen dioxide, liquefied
Nitrogen oxide
Nitrogen peroxide
Nitrogen peroxide, liquefied
Nitrogen tetroxide |

# Section 4: First Aid Measures

| Skin Contact | Eye Contact | Ingestion | Inhalation | Note to Physicians |
| --- | --- | --- | --- | --- |
| 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. | Not applicable route of exposure | 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. | None |

# Section 5: Fire Fighting Measures

| Suitable Extinguishing Media | Products of Combustion | Protection of Firefighters |
| --- | --- | --- |
| Non-flammable gas. Use suitable extinguishing media for surrounding fire.  | Thermal decomposition to give nitric oxide and oxygen when heated above 160 deg C | * Any self-contained breathing apparatus with a full facepiece. Use a chemical protective suit.
* Any self-contained breathing apparatus with a full facepiece. Use a chemical protective suit.
 |

# Section 6: Accidental Release Measures

| Personal Precautions | Environmental Precautions | Methods for Containment |
| --- | --- | --- |
| Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. | Avoid heat, flames, sparks and other sources of ignition. Keep out of water supplies and sewers.  | Not available.  |

| Methods for Cleanup | Other Information |
| --- | --- |
| Contact emergency personnel | None.  |

# 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. Keep separated from incompatible substances. | Avoid using in confined spaces.  |

# Section 8: Exposure Controls/Personal Protection

| Exposure Guidelines |
| --- |
| TLV-TWA: 3 ppm Short-term Exposure Limits (TLV-STEL): 5ppm |

## Engineering Controls

Handle only in fully enclosed systems.

| Eye Protection | Skin Protection | Respiratory Protection |
| --- | --- | --- |
| Eye protection not required, but recommended. | Wear appropriate chemical resistant clothing. | Any self-contained breathing apparatus with a full facepiece. Use a chemical protective 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 | Yellow to dark brown | N/A | Gas | Pungent odor | N/A |

| Flash Point | Flammability | Partition Coefficient | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
| --- | --- | --- | --- | --- | --- |
| Not applicable | Not available | Not available | Nonflammable | Nonflammable | Nonflammable  |

| Boiling Point | Freezing Point | Vapor Pressure | Vapor Density | Specific Gravity | Water Solubility | pH | Odor Threshold | Evaporation Rate | Viscosity |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 70.1F  | 12 F (-11 C)  | 760 mmHg @ 21.1 C | 1.58 (air=1)  | 1.449  | Reacts to form nitric acid and nitrous acid; nitrous acid then decomposes to nitric acid and nitric oxide. | Not applicable; solutions are very acidic | Reported values vary. 0.11-0.14 ppm (minimum perceptible value) | Not applicable | 0.42 cP @ 20 C  |

| Molecular Weight | Molecular Formula | Density | Weight per Gallon | Volatility by Volume | Volatility | Solvent Solubility |
| --- | --- | --- | --- | --- | --- | --- |
| 46.01 (NO2) or 92.01 (N2O4)  | N-O2 or N2-O4 | Not available | Not available | 100% | Not available | Soluble: Alkalies, chloroform, carbon disulfide and concentrated nitric and sulfuric acids. |

# Section 10: Stability and Reactivity

| Stability | Conditions to Avoid | Incompatible Materials |
| --- | --- | --- |
| Normally stable. Nitrogen dioxide thermally decomposes to nitric oxide and oxygen when heated above 160 deg C. | Normally stable. Nitrogen dioxide thermally decomposes to nitric oxide and oxygen when heated above 160 deg C. | ACETIC ANHYDRIDE, ALCOHOLS, AMMONIA, BORON TRICHLORIDE, CALCIUM, DIMETHYL SULFOXIDE, FORMALDEHYDE , hydrogen, oxygen, metals |

| Hazardous Decomposition Products | Possibility of Hazardous Reactions |
| --- | --- |
| Decomposes in water to form nitric acid and nitrous acid.  | Will not polymerize.  |

# Section 11: Toxicology Information

## Acute Effects

| Oral LD50 | Dermal LD50 | Inhalation |
| --- | --- | --- |
| LC50 Inhalation Vapor Rat 790 mg/m3 5 minutes | Not available | Respiratory tract irritation, cough, dyspnea, headache, nausea, irregular heartbeat, fatigue, pulmonary edema, rapid breathing, increased heart rate, dyspnea, chest pain, bleeding from the lungs or small airways and cyanosis (bluish discoloration of the skin) |

| Eye Irritation | Skin Irritation | Sensitization |
| --- | --- | --- |
| Irritation | Liquid: burns | Respiratory tract irritation, difficulty breathing, skin irritation, eye irritation |

## Chronic Effects

| Carcinogenicity | Mutagenicity | Reproductive Effects | Developmental Effects |
| --- | --- | --- | --- |
| May be a carcinogen | Mutagenic | May have reproductive effects. | No data |

# Section 12: Ecological Information

## Fate and Transport

|  |  |  |  |
| --- | --- | --- | --- |
| Eco toxicity | Persistence / Degradability | Bioaccumulation / Accumulation | Mobility in Environment |
| Fish toxicity: Acute LC50 19600 ug/L Fresh water Fish - Tench - Tinca tinca - LARVAE - 20 days - 11.18 mm - 11.36 mg 96 hoursInvertibrate toxicity: Acute LC50 79450 ug/L Marine water Crustaceans - Redtail prawn - Penaeus penicillatus - 3.58 to 4.75 cm - 0.4 to 0.69 g 48 hoursAlgal toxicity: Not availablePhyto toxicity: Not availableOther toxicity: Not available | Not available | Not available | Not available |

# Section 13: Disposal Considerations

|  |
| --- |
| Dispose in accordance with all applicable federal and local regulations.  |

# 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 |
| --- | --- | --- | --- | --- | --- | --- | --- |
| DINITROGEN TETROXIDE; or NITROGEN DIOXIDE | UN1067 | 2.3, 5.1 | Not applicable | DINITROGEN TETROXIDE | Forbidden | Forbidden | N/A |

## Canadian Transportation of Dangerous Goods

|  |  |  |  |
| --- | --- | --- | --- |
| Shipping Name | UN Number | Class | Packing Group / Risk Group |
| DINITROGEN TETROXIDE; or NITROGEN DIOXIDE | UN1067 | 2.3 | Not applicable |

# Section 15: Regulatory Information

## U.S. Regulations

|  |  |  |
| --- | --- | --- |
| CERCLA Sections | SARA 355.30 | SARA 355.40 |
| Not regulated. | 100 LBS TPQ | 10 LBS RQ |

## SARA 370.21

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

## SARA 372.65

|  |
| --- |
| N/A |

## OSHA Process Safety

|  |
| --- |
| Not available |

## State Regulations

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

## Canadian Regulations

|  |
| --- |
| WHMIS Classification |
| A, C, D1A, D2B, E  |

## National Inventory Status

|  |  |  |
| --- | --- | --- |
| US Inventory (TSCA) | TSCA 12b Export Notification | Canada Inventory (DSL/NDSL) |
| Listed on inventory. | Listed | Listed on inventory. |

# Section 16: Other Information

|  |
| --- |
| NFPA Rating |
| Not available |

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