

Section 1: Product and Company Identification

Absolute Accuracy
4591 S Wayside Dr
Houston, TX 77087
(832) 571-2387

Product Code: 2790

Synonyms:
Recommended Use:
Usage Restrictions:

Section 2: Hazards Identification



Hazard Classification:

Acute Oral Toxicity (Category 4)
Eye Effects (Category 2.A)
Gases Under Pressure
Specific target organ toxicity (Single Exposure) (Category 3)

Hazard Statements:

Causes serious eye irritation
Contains gas under pressure; may explode if heated
Harmful if swallowed
May cause respiratory irritation;

Precautionary Statements

Prevention:

Wash thoroughly after handling.
Avoid breathing dust/fume/gas/mist/ vapors/spray.
[In case of inadequate ventilation] wear respiratory protection.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear eye protection/face protection.

Response:

If swallowed: Immediately call a poison center or doctor.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If inhaled: Remove person to fresh air and keep comfortable for breathing.

Storage:

Store locked up.
Protect from sunlight.

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

Disposal:

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

Section 3: Composition/Information on Ingredients

| | CAS # | Concentration |
|----------------|-----------|---------------|
| Methyl Formate | 107-31-3 | ppm 250 |
| Nitrogen | 7727-37-9 | balance |

| | Chemical Substance | Chemical Family | Trade Names |
|----------------|--------------------------|-----------------|---|
| Methyl Formate | METHYL FORMATE | Esters | Methyl methanoate; Formic acid methyl ester |
| Nitrogen | NITROGEN, COMPRESSED GAS | Inorganic gases | DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2 |

Section 4: First Aid Measures

| | Skin Contact | Eye Contact | Ingestion | Inhalation | Note to Physicians |
|----------------|---|--|--|--|----------------------------------|
| Methyl Formate | Wash with water for 15 minutes. Remove contaminated clothing and shoes. Seek medical attention. | Flush eyes with water from 15 minutes. Seek medical attention. | If victim is conscious, give milk or water. Never give anything by mouth to a victim who is unconscious or unresponsive. | Remove to fresh air. Seek medical attention immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. | None |
| Nitrogen | Wash exposed skin with soap and water. | Flush eyes with plenty of water. | If a large amount is swallowed, get medical attention. | 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. | For inhalation, consider oxygen. |

Section 5: Fire Fighting Measures

| | Suitable Extinguishing Media | Products of Combustion | Protection of Firefighters |
|----------------|--|---|--|
| Methyl Formate | Use water, dry chemical, carbon dioxide, or alcohol-resistant foam. | Carbon monoxide, carbon dioxide, formic acid, methanol. | <ul style="list-style-type: none"> Use self-contained breathing apparatus, and full protective gear. |
| Nitrogen | Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat. | Non-flammable | <ul style="list-style-type: none"> Respiratory protection may be needed for frequent or heavy exposure. |

Section 6: Accidental Release Measures

| | Personal Precautions | Environmental Precautions | Methods for Containment |
|-----------------------|--|---|--|
| Methyl Formate | Use appropriate personal protective equipment as described in Section 8 | Avoid environmental contamination. | Clean up spills immediately. |
| Nitrogen | Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. | No significant effects from contamination expected. | Stop leak if possible without personal risk. |

| | Methods for Cleanup | Other Information |
|-----------------------|--|-------------------|
| Methyl Formate | Stop leak if possible without personal risk. Wash area with soap and water. Contain and clean up with activated carbon absorbent, or dry earth. Dispose of in accordance with applicable laws. | None. |
| Nitrogen | N/A | N/A |

Section 7: Handling and Storage

| | Handling | Storage |
|-----------------------|--|---|
| Methyl Formate | Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 125F (52C). Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods. | Do not get liquid in eyes, on skin, or clothing. Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide, or drop. Open valve slowly. Close cylinder valve after each use; keep closed even when empty. If valve is hard to open, discontinue use and contact your supplier. |
| Nitrogen | 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. |

Section 8: Exposure Controls/Personal Protection

| | Exposure Guidelines |
|-----------------------|--|
| Methyl Formate | TWA: 100 STEL: 150 (ppm) TWA: 250 STEL: 368 (mg/m ³) |
| Nitrogen | NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant) |

Engineering Controls

Handle only in fully enclosed systems.

| | Eye Protection | Skin Protection | Respiratory Protection |
|-----------------------|---|--------------------------------------|--|
| Methyl Formate | Wear splash resistant goggles. | Full chemical protective suit. | Use self-contained breathing apparatus, and full protective gear. |
| Nitrogen | Eye protection not required, but recommended. | Protective clothing is not required. | Respiratory protection may be needed for frequent or heavy exposure. |

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 |
|----------------|----------------|------------|-----------|----------------------|---------------|----------|-----------|
| Methyl Formate | Liquid | Colorless | Colorless | N/A | Liquid | Ethereal | N/A |
| Nitrogen | Gas | Clear | Colorless | N/A | Gas | Odorless | Tasteless |

| | Flash Point | Flammability | Partition Coefficient | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
|----------------|---------------|---------------|-----------------------|---------------------------|------------------------|------------------------|
| Methyl Formate | -19 C | Not available | Not available | 449 deg C (840.20 deg F) | 23 | 4.5 |
| Nitrogen | Not flammable | 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 |
|----------------|-----------------|------------------|---------------------|----------------|-------------------|------------------------------|----------------|----------------|------------------|-------------------|
| Methyl Formate | 31.8C (89.2F) | -99.8C (-147.6F) | 476 mm of Hg (@ 20C | 2.07 (Air = 1) | 0.975 (Water = 1) | Easily soluble in cold water | Not available | 203.6 ppm | Not available | Not available |
| Nitrogen | -321 F (-196 C) | -346 F (-210 C) | 760 mmHg @ -196 C | 0.967 (Air=1) | Not applicable | 1.6% @ 20 C | Not applicable | Not available | Not applicable | 0.01787 cP @ 27 C |

| | Molecular Weight | Molecular Formula | Density | Weight per Gallon | Volatility by Volume | Volatility | Solvent Solubility |
|----------------|------------------|-------------------|----------------|-------------------|----------------------|---------------|-------------------------|
| Methyl Formate | 60.04 | C2H4O2 | (g cm-3): 0.98 | Not available | Not available | Not available | |
| Nitrogen | 28.0134 | N2 | 1.2506 g/L | Not available | 100% | 1 | Soluble: Liquid ammonia |

Section 10: Stability and Reactivity

| | Stability | Conditions to Avoid | Incompatible Materials |
|----------------|---|---|---|
| Methyl Formate | Stable. May react with water | Stable. May react with water | Oxidizing agents; bases; acids. Reacts with methanol + sodium methoxide to form an explosive product. |
| Nitrogen | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | Metals, oxidizing materials |

| | Hazardous Decomposition Products | Possibility of Hazardous Reactions |
|----------------|---|------------------------------------|
| Methyl Formate | Carbon monoxide, carbon dioxide, formic acid, methanol. | Not known. |
| Nitrogen | Oxides of nitrogen | Will not polymerize. |

Section 11: Toxicology Information

Acute Effects

| | Oral LD50 | Dermal LD50 | Inhalation |
|----------------|-------------------------|------------------------------|---|
| Methyl Formate | Mouse: LD50 = 675 mg/kg | Guinea pig: LD50 = >20 mL/kg | Harmful. Causes respiratory tract irritation. Chemical pneumonitis and pulmonary edema possible. Possible effects include headache, dizziness, weakness, unconsciousness. |
| Nitrogen | Not available | Not available | Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma |

| | Eye Irritation | Skin Irritation | Sensitization |
|-----------------------|---|---|--|
| Methyl Formate | Irritation (possibly severe), tearing | Irritation. May be absorbed through the skin | Acute toxicity, Category 4, oral; H302: Harmful if swallowed. Acute toxicity, Category 4, inhalation; H332: Harmful if inhaled. Eye irritation, Category 2; H319: Causes serious eye irritation. Specific Target Organ Toxicity (single exposure), Category 3; H335: May cause respiratory irritation. |
| Nitrogen | Contact with rapidly expanding gas may cause burns or frostbite | No information on significant adverse effects | Difficulty breathing |

Chronic Effects

| | Carcinogenicity | Mutagenicity | Reproductive Effects | Developmental Effects |
|-----------------------|--|---------------|----------------------|-----------------------|
| Methyl Formate | Not listed by ACGIH, IARC, NTP, or CA Prop 65. | Not available | Not available | No data |
| Nitrogen | Not hazardous | Not available | Not available | No data |

Section 12: Ecological Information

Fate and Transport

| | Eco toxicity | Persistence / Degradability | Bioaccumulation / Accumulation | Mobility in Environment |
|-----------------------|---|-----------------------------|--------------------------------|-------------------------|
| Methyl Formate | Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Products of degradation are more toxic. | Not available | Not available | Not available |
| Nitrogen | Fish toxicity: Not available Invertebrate 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

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

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

| | |
|---------------------------|---|
| Shipping Name | Compressed gas, n.o.s. (Nitrogen, Methyl Formate) |
| UN Number | UN1956 |
| Hazard Class | 2.2 |
| Hazard Information | Non-Flammable Gas |

Individual Component Information

| | 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 |
|----------------|----------------------|-----------|--------------------------|----------------|-----------------------|--|--|---------------------------------|
| Methyl Formate | METHYL FORMATE | 1243 | 3 | I | N/A | N/A | N/A | N/A |
| Nitrogen | Nitrogen, compressed | UN1066 | 2.2 | Not applicable | 2.2 | 75 kg or L | 150 kg | N/A |

Canadian Transportation of Dangerous Goods

| | Shipping Name | UN Number | Class | Packing Group / Risk Group |
|----------------|----------------------|-----------|-------|----------------------------|
| Methyl Formate | METHYL FORMATE | 1243 | 3 | I |
| Nitrogen | Nitrogen, compressed | UN1066 | 2.2 | Not applicable |

Section 15: Regulatory Information

U.S. Regulations

| | CERCLA Sections | SARA 355.30 | SARA 355.40 |
|----------------|-----------------|----------------|----------------|
| Methyl Formate | Not regulated. | Not regulated. | Not regulated. |
| Nitrogen | Not regulated. | Not regulated. | Not regulated. |

SARA 370.21

| | Acute | Chronic | Fire | Reactive | Sudden Release |
|----------------|-------|---------|------|----------|----------------|
| Methyl Formate | Yes | No | Yes | No | No |
| Nitrogen | Yes | No | No | No | Yes |

SARA 372.65

| | |
|----------------|----------------|
| Methyl Formate | Not regulated. |
| Nitrogen | Not regulated. |

OSHA Process Safety

| | |
|----------------|----------------|
| Methyl Formate | Not regulated. |
| Nitrogen | Not regulated. |

State Regulations

| | CA Proposition 65 |
|----------------|-------------------|
| Methyl Formate | Not listed. |
| Nitrogen | Not regulated. |

Canadian Regulations

| | WHMIS Classification |
|----------------|----------------------|
| Methyl Formate | B2, D2B |

| | |
|----------|---|
| Nitrogen | A |
|----------|---|

National Inventory Status

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

Section 16: Other Information

| | NFPA Rating |
|-----------------------|--|
| Methyl Formate | Health: 2; Flammability: 4; Instability: 0 |
| Nitrogen | HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA |

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