

Issuing Date 15-Oct-2025

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Revision Number 3

**Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****Product identifier****Product Name** WW-CAL-3**Other means of identification**

Product Description 1000 µg/mL: P; 200 µg/mL: Ce, Co, V

**Recommended use of the chemical and restrictions on use****Recommended Use** Laboratory chemicals**Restriction on Use** No information available**Details of the supplier of the safety data sheet**

|         |                                                                                                                                          |                |                            |
|---------|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------|
| Company | Inorganic Ventures<br>300 Technology Drive<br>Christiansburg, VA 24073<br>Phone: 1(800) 669-6799<br>Email:<br>info@inorganicventures.com | E-mail Address | info@inorganicventures.com |
|---------|------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------|

**Emergency telephone number****Emergency Telephone** Chemtrec 1-800-424-9300 (US)  
+34.678750066**Section 2: HAZARDS IDENTIFICATION****Classification**

|                                   |                           |
|-----------------------------------|---------------------------|
| Skin corrosion/irritation         | Category 1 Sub-category B |
| Serious eye damage/eye irritation | Category 1                |
| Carcinogenicity                   | Category 1A               |
| Corrosive to metals               | Category 1                |

**Label Elements****Danger****Hazard statements**

Causes severe skin burns and eye damage  
May cause cancer  
May be corrosive to metals

**Precautionary Statements - Prevention**

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Wear protective gloves/protective clothing/eye protection/face protection  
Do not breathe dust/fume/gas/mist/vapors/spray  
Wash face, hands and any exposed skin thoroughly after handling  
Keep only in original packaging

**Precautionary Statements - Response**

Immediately call a POISON CENTER or doctor  
Specific treatment (see .? on this label)

**Eyes**

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

**Skin**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]  
Wash contaminated clothing before reuse

**Inhalation**

IF INHALED: Remove person to fresh air and keep comfortable for breathing  
Immediately call a POISON CENTER or doctor

**Ingestion**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

**Spill**

Absorb spillage to prevent material damage

**Precautionary Statements - Storage**

Store locked up  
Store in corrosion resistant container with a resistant inner liner

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Other Information**

**Unknown acute toxicity** 5 % of the mixture consists of ingredient(s) of unknown toxicity  
5 % of the mixture consists of ingredient(s) of unknown acute oral toxicity  
5 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**Substance**

Not applicable.

**Mixture**

| Chemical name | CAS No.   | Weight-% | Hazardous Material Information Review Act registry number (HMIRA registry #) | Date HMIRA filed and date exemption granted (if applicable) |
|---------------|-----------|----------|------------------------------------------------------------------------------|-------------------------------------------------------------|
| Nitric acid   | 7697-37-2 | 5        | -                                                                            |                                                             |

**Section 4: FIRST AID MEASURES****Description of first aid measures**

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General advice</b>                     | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required. IF exposed or concerned: Get medical advice/attention.                                                                                                                                                                                                                                                                               |
| <b>Inhalation</b>                         | Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. |
| <b>Eye contact</b>                        | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention.                                                                                                                                                                       |
| <b>Skin contact</b>                       | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.                                                                                                                                                                                                                                                                                          |
| <b>Ingestion</b>                          | Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention.                                                                                                                                                                                                                                                    |
| <b>Self-protection of the first aider</b> | Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.                                                                                                       |

**Most important symptoms and effects, both acute and delayed**

|                 |                    |
|-----------------|--------------------|
| <b>Symptoms</b> | Burning sensation. |
|-----------------|--------------------|

**Indication of any immediate medical attention and special treatment needed**

|                           |                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Note to physicians</b> | Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Section 5: FIRE FIGHTING MEASURES**

|                                                       |                                                                                                                                        |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Suitable Extinguishing Media</b>                   | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.                                |
| <b>Unsuitable extinguishing media</b>                 | CAUTION: Use of water spray when fighting fire may be inefficient.                                                                     |
| <b>Specific hazards arising from the chemical</b>     | The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. |
| <b>Explosion Data</b>                                 |                                                                                                                                        |
| <b>Sensitivity to mechanical impact</b>               | None.                                                                                                                                  |
| <b>Sensitivity to static discharge</b>                | None.                                                                                                                                  |
| <b>Special protective equipment for fire-fighters</b> | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.     |

## Section 6: ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

|                             |                                                                                                                                                                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal precautions</b> | Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| <b>Other information</b>    | Refer to protective measures listed in Sections 7 and 8.                                                                                                                                                                                |

### Methods and material for containment and cleaning up

|                                |                                                       |
|--------------------------------|-------------------------------------------------------|
| <b>Methods for containment</b> | Prevent further leakage or spillage if safe to do so. |
| <b>Methods for cleaning up</b> | Pick up and transfer to properly labeled containers.  |

## Section 7: HANDLING AND STORAGE

### Precautions for safe handling

|                                |                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Advice on safe handling</b> | Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Conditions for safe storage, including any incompatibilities

|                           |                                                                                                                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Storage Conditions</b> | Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials. |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Limits

| Chemical name            | Alberta                                                                               | British Columbia          | Ontario TWAEV             | Quebec                                                                                |
|--------------------------|---------------------------------------------------------------------------------------|---------------------------|---------------------------|---------------------------------------------------------------------------------------|
| Nitric acid<br>7697-37-2 | TWA: 2 ppm<br>TWA: 5.2 mg/m <sup>3</sup><br>STEL: 4 ppm<br>STEL: 10 mg/m <sup>3</sup> | TWA: 2 ppm<br>STEL: 4 ppm | TWA: 2 ppm<br>STEL: 4 ppm | TWA: 2 ppm<br>TWA: 5.2 mg/m <sup>3</sup><br>STEL: 4 ppm<br>STEL: 10 mg/m <sup>3</sup> |

**Appropriate engineering controls**

**Engineering controls**                      Showers  
                                                          Eyewash stations  
                                                          Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**                      Face protection shield.

**Hand protection**                              Wear suitable gloves. Impervious gloves.

**Skin and body protection**                      Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**Respiratory protection**                      No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations**                      Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

**Section 9: PHYSICAL AND CHEMICAL PROPERTIES****Information on basic physical and chemical properties**

**Physical state**                                      Liquid  
**Appearance**                                      clear / colorless  
**Odor**                                                  Odorless  
**Odor Threshold**                                  No information available

**Property**                                              **Values**  
**Melting point / freezing point**                      No data available

**Flash point**                                          No data available  
**Flammability (solid, gas)**                      No data available  
**Upper flammability or explosive limits**                      No data available  
**Lower flammability or explosive limits**                      No data available

**Vapor pressure**                                      No data available  
**Relative Density**                                      No data available  
**Literary reference**

**Partition coefficient: n-octanol/water** No data available

**Hyphen**                                                  No data available  
**Dynamic viscosity**                                  No data available

**pH**                                                          No data available  
**Initial boiling point and boiling range**                      100 °C / 212 °F  
**Evaporation rate**                                  No data available  
**Flammability Limit in Air**

**Vapor density**                                          No data available  
**Water solubility**                                      No data available  
**Solubility in other solvents**  
**Autoignition temperature**                      No data available  
**Viscosity, kinematic**                              No data available  
**None known**

**Other information**

|                      |                           |
|----------------------|---------------------------|
| Explosive properties | No information available. |
| Oxidizing properties | No information available. |
| Softening Point      | No information available  |
| Molecular Weight     | No information available  |
| VOC content          | No information available  |
| Liquid Density       | No information available  |
| Bulk density         | No information available  |

## Section 10: STABILITY AND REACTIVITY

|                                    |                                                     |
|------------------------------------|-----------------------------------------------------|
| Reactivity                         | No information available.                           |
| Chemical stability                 | Stable under normal conditions.                     |
| Possibility of hazardous reactions | None under normal processing.                       |
| Hazardous Polymerization           | None under normal processing.                       |
| Conditions to Avoid                | Exposure to air or moisture over prolonged periods. |
| Incompatible materials             | Oxidizing agent. acids. bases.                      |
| Hazardous decomposition products   | Nitrogen oxides (NOx).                              |

## Section 11: TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

#### Product Information

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inhalation   | Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.                                   |
| Eye contact  | Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.                                                                                                                                                                                                                                                                           |
| Skin contact | Specific test data for the substance or mixture is not available. May cause irritation.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Ingestion    | Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. |

### Symptoms related to the physical, chemical and toxicological characteristics

|          |                                                                   |
|----------|-------------------------------------------------------------------|
| Symptoms | redness. Burning. May cause blindness. Coughing and/ or wheezing. |
|----------|-------------------------------------------------------------------|

### Acute toxicity

### Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

|                               |                 |
|-------------------------------|-----------------|
| ATEmix (oral)                 | 99,999.00 mg/kg |
| ATEmix (dermal)               | 99,999.00 mg/kg |
| ATEmix (inhalation-gas)       | 99,999.00 mg/l  |
| ATEmix (inhalation-dust/mist) | 10.00 mg/l      |
| ATEmix (inhalation-vapor)     | 64.40 mg/l      |

**Unknown acute toxicity** 5 % of the mixture consists of ingredient(s) of unknown toxicity  
 5 % of the mixture consists of ingredient(s) of unknown acute oral toxicity  
 5 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity  
 5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)  
 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)  
 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

#### Component Information

| Chemical name            | Oral LD50 | Dermal LD50 | Inhalation LC50        |
|--------------------------|-----------|-------------|------------------------|
| Nitric acid<br>7697-37-2 | -         | -           | = 2500 ppm ( Rat ) 1 h |

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Skin corrosion/irritation** May cause skin irritation.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** Classification based on data available for ingredients.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name            | ACGIH | IARC                | NTP | OSHA |
|--------------------------|-------|---------------------|-----|------|
| Nitric acid<br>7697-37-2 | -     | Group 1<br>Group 2A | -   | X    |

#### Legend

**IARC (International Agency for Research on Cancer)**

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

**OSHA (Occupational Safety and Health Administration of the US Department of Labor)**

X - Present

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Target organ effects** Skin, Eyes, Respiratory system.

**Neurological Effects** Prolonged or excessive exposure to manganese in dust or fumes may cause irreversible central nervous system damage (Manganism). Symptoms resemble Parkinson's disease and include tremors, impaired speech, mask-like face, and impaired movement.

**Aspiration hazard** No information available.

## Section 12: ECOLOGICAL INFORMATION

### Ecotoxicity

**Persistence and Degradability** No information available.

**Bioaccumulation** No information available.

### Component Information

| Chemical name            | Partition coefficient |
|--------------------------|-----------------------|
| Nitric acid<br>7697-37-2 | -2.3                  |

## Section 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

## Section 14: TRANSPORT INFORMATION

### IMDG

14.1. UN-No UN3264  
 14.2. Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s  
 14.3. Transport hazard class(es) 8  
 14.4. Packing Group III  
     Description Not applicable  
 14.5. Marine Pollutant None  
 14.6. Special Provisions None  
 No information available Transport No information available  
 in bulk according  
 to Annex II of MARPOL 73/78 and  
 the IBC Code

### RID

14.1. UN-No UN3264  
 14.2. Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s  
 14.3. Transport hazard class(es) 8  
 14.4. Packing Group III  
     Description Not applicable  
 14.5. Environmental hazard None  
 14.6. Special Provisions None

### ADR

14.1. UN-No UN3264  
 14.2. Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s  
 14.3. Transport hazard class(es) 8  
 14.4. Packing Group III  
     Description Not applicable

14.5. Environmental hazard None  
 14.6. Special Provisions None

**ICAO**

14.1. UN-No UN3264  
 14.2. Proper Shipping Name Corrosive liquid, acidic, inorganic, n.o.s  
 14.3. Hazard Class 8  
 14.4. Packing Group III  
 Description Not applicable  
 14.5. Environmental hazard None  
 14.6. Special Provisions None

**IATA-DGR**

14.1. UN-No UN3264  
 14.2. Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s  
 14.3. Transport hazard class(es) 8  
 14.4. Packing Group III  
 Description Not applicable  
 14.5. Environmental hazard None  
 14.6. Special Provisions None

**Section 15: REGULATORY INFORMATION**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**International Regulations**

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

**International Inventories**

|               |                 |
|---------------|-----------------|
| TSCA          | Complies        |
| DSL/NDSL      | Complies        |
| EINECS/ELINCS | Complies        |
| ENCS          | Complies        |
| IECSC         | Complies        |
| KECL          | Complies        |
| PICCS         | Does not Comply |
| AIIC          | Complies        |

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**Section 16: OTHER INFORMATION**

|                                             |                    |                |                    |                                    |
|---------------------------------------------|--------------------|----------------|--------------------|------------------------------------|
| <b>National Fire Protection Association</b> | Health hazards 3   | Flammability 0 | Instability 0      | Physical and chemical properties - |
| <b>HMIS</b>                                 | Health hazards 3 * | Flammability 0 | Physical hazards 0 | Personal protection X              |

**Key or legend to abbreviations and acronyms used in the safety data sheet****LEG8 Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

|        |                             |        |                                  |
|--------|-----------------------------|--------|----------------------------------|
| LEGTWA | TWA (time-weighted average) | LEGST  | STEL (Short Term Exposure Limit) |
| LEGC   | Maximum limit value         | LEGSKN | Skin designation                 |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
U.S. Environmental Protection Agency ChemView Database  
European Food Safety Authority (EFSA)  
Environmental Protection Agency  
Acute Exposure Guideline Level(s) (AEGl(s))  
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
U.S. Environmental Protection Agency High Production Volume Chemicals  
Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan GHS Classification  
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
NIOSH (National Institute for Occupational Safety and Health)  
National Library of Medicine's ChemID Plus (NLM CIP)  
National Library of Medicine's PubMed database (NLM PUBMED)  
U.S. National Toxicology Program (NTP)  
New Zealand's Chemical Classification and Information Database (CCID)  
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
Organization for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**Revision Date** 15-Oct-2025**Revision Note** No information available.**Disclaimer**

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of SDS**