1. IDENTIFICATION

**Product Name**
Monoammonium phosphate (MAP)

**Other Names**
Ammonium dihydrogen orthophosphate; Ammonium dihydrogen phosphate; Monoammonium orthophosphate; Monoammonium phosphate + Zinc Blend

**Uses**
Agricultural use as an ingredient of fertilisers; as a component in dry chemical fire extinguishers; Food additive; Optics; Electronics.

**Chemical Family**
No Data Available

**Chemical Formula**
Unspecified

**Chemical Name**
Phosphoric acid, monoammonium salt

**Product Description**
No Data Available

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**Contact Details of the Supplier of this Safety Data Sheet**

**Organisation**
Redox Pty Ltd

**Location**
2 Swettenham Road
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Australia

**Telephone**
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Redox Pty Ltd

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New Zealand

**Telephone**
+64-9-2506222

Redox Inc.

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Suite 107
Lakewood CA 90712
USA

**Telephone**
+1-424-675-3200

Redox Chemicals Sdn Bhd

Level 2, No. 8, Jalan Sapir 33/7
Sekyen 33, Shah Alam Premier Industrial Park
40400 Shah Alam
Selangor, Malaysia

**Telephone**
+60-3-5614-2111

---

**Emergency Contact Details**

*For emergencies only; DO NOT contact these companies for general product advice.*

**Organisation**
Chemcall

**Location**
New Zealand

**Telephone**
0800-243622
+64-4-9179888

National Poisons Centre

**Location**
New Zealand

**Telephone**
0800-764766

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2. HAZARD IDENTIFICATION

**Poisons Schedule (Aust)**
Not Scheduled

**Globally Harmonised System**

**Hazard Classification**
NOT hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

**Signal Word**
None
Environmental Protection Authority (New Zealand)
Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications

<table>
<thead>
<tr>
<th>Health Hazards</th>
<th>Description</th>
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<tbody>
<tr>
<td>6.3B</td>
<td>Substances that are mildly irritating to the skin</td>
</tr>
<tr>
<td>6.4A</td>
<td>Substances that are irritating to the eye</td>
</tr>
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</table>

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

<table>
<thead>
<tr>
<th>Chemical Entity</th>
<th>Formula</th>
<th>CAS Number</th>
<th>Proportion</th>
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</thead>
<tbody>
<tr>
<td>Monoammonium phosphate</td>
<td>H6NO4P</td>
<td>7722-76-1</td>
<td>&lt;=100%</td>
</tr>
<tr>
<td>Zinc</td>
<td>Zn</td>
<td>7440-66-6</td>
<td>0 - 1 %</td>
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</tbody>
</table>

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed
IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Get medical advice/attention. Never give anything by mouth to an unconscious person.

Eye
IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.

Skin
IF ON SKIN: Remove contaminated clothing and shoes immediately. Flush skin with (warm) running water for several minutes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing before reuse.

Inhaled
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing until recovered. If respiratory symptoms persist, get medical advice/attention. Apply resuscitation if victim is not breathing; Administer oxygen if breathing is difficult.

Advice to Doctor
Treat symptomatically.

Medical Conditions Aggravated by Exposure
No information available.

5. FIRE FIGHTING MEASURES

General Measures
If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.

Flammability Conditions
Non-combustible; Material does not burn.

Extinguishing Media
If material is involved in a fire, use dry chemical, Carbon dioxide (CO₂), foam or water spray for extinction. Use extinguishing media appropriate to surrounding fire conditions.

Fire and Explosion Hazard
May evolve toxic fumes/gases when heated to decomposition.

Hazardous Products of Combustion
Fire or heat may produce irritating and/or toxic fumes, including ammonia, oxides of Nitrogen and oxides of Phosphorus.

Special Fire Fighting Instructions
Contain runoff from fire control or dilution water - Runoff may pollute waterways.

Personal Protective Equipment
Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (full fire kit).

Flash Point
No Data Available

Lower Explosion Limit
No Data Available

Upper Explosion Limit
No Data Available

Auto Ignition Temperature
No Data Available
No Data Available
6. ACCIDENTAL RELEASE MEASURES

General Response Procedure
Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing.

Clean Up Procedures
Collect material (sweep or vacuum up) and place in suitable, properly labelled containers for recycling or salvage (if uncontaminated) or disposal (see SECTION 13).

Containment
Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas.

Decontamination
After spill cleanup, wash area preventing runoff from entering drains.

Environmental Precautionary Measures
Prevent entry into drains and waterways. If environmental contamination has occurred, advise local emergency services.

Evacuation Criteria
Spill or leak area should be isolated immediately. Keep unauthorised personnel away.

Personal Precautionary Measures
Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling
Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Use personal protective equipment as required (see SECTION 8). To avoid thermal decomposition, do not overheat. Avoid contact with incompatible materials (see SECTION 10).

Storage
Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed when not in use. Avoid exposure to water/moisture. Keep away from foodstuffs and incompatible materials (see SECTION 10). Store away from farm chemicals, e.g. insecticides, fungicides and herbicides.

Container
Keep in the original container. Ensure product is adequately labelled.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General
No value assigned for this specific material by Safe Work Australia. For dusts from solid substances without specific occupational exposure standards:
- Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m$^3$, measured as inhalable dust.
- New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m$^3$; TWA = 3 mg/m$^3$ (respirable).

Exposure Limits
No Data Available

Biological Limits
No information available.

Engineering Measures
A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Personal Protection Equipment
- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or where an inhalation risk exists. Recommended: Dust mask/particulate respirator (refer to AS/NZS 1715 & 1716).
- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses or dust-proof goggles.
- Hand protection: Handle with gloves. Recommended: Impervious gloves, e.g., rubber or PVC.
- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Lightweight protective clothing; Safety shoes. Wear overalls when using in large quantities or where heavy contamination is likely.

Special Hazards Precautions
No information available.

Work Hygienic Practices
Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of work. Wash contaminated clothing and other protective equipment before storage or re-use.
### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Crystals, granules or powder</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless or slight-acidic</td>
</tr>
<tr>
<td>Colour</td>
<td>White or off-white</td>
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<tr>
<td>pH</td>
<td>4.2 - 5.0 (1% solution)</td>
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<tr>
<td>Vapour Pressure</td>
<td>&lt;1 mmHg (@ 20 °C)</td>
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<tr>
<td>Relative Vapour Density</td>
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<tr>
<td>Boiling Point</td>
<td>Decomposes before boiling</td>
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<tr>
<td>Melting Point</td>
<td>190 - 197 °C</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Solubility</td>
<td>Soluble in water (370 g/l) 25°C</td>
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<tr>
<td>Specific Gravity</td>
<td>1.80 - 1.81</td>
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<tr>
<td>Flash Point</td>
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<tr>
<td>Auto Ignition Temp</td>
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<tr>
<td>Evaporation Rate</td>
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<tr>
<td>Bulk Density</td>
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<td>Corrosion Rate</td>
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<td>Decomposition Temperature</td>
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<tr>
<td>Density</td>
<td>1.81 g/cm³</td>
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<td>Specific Heat</td>
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<tr>
<td>Molecular Weight</td>
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<td>Net Propellant Weight</td>
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<td>Octanol Water Coefficient</td>
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<td>Particle Size</td>
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<tr>
<td>Partition Coefficient</td>
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<td>Saturated Vapour Concentration</td>
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<td>Vapour Temperature</td>
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<td>Viscosity</td>
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<td>Volatile Percent</td>
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<tr>
<td>VOC Volume</td>
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<tr>
<td>Additional Characteristics</td>
<td>No information available.</td>
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<tr>
<td>Potential for Dust Explosion</td>
<td>Product does not present an explosion hazard (inorganic substance).</td>
</tr>
<tr>
<td>Fast or Intensely Burning</td>
<td>No information available.</td>
</tr>
<tr>
<td>Characteristics</td>
<td></td>
</tr>
<tr>
<td>Flame Propagation or Burning</td>
<td>No information available.</td>
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<tr>
<td>Rate of Solid Materials</td>
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<tr>
<td>Non-Flammables That Could</td>
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<tr>
<td>Contribute Unusual Hazards to a Fire</td>
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<tr>
<td>Properties That May Initiate or Contribute to Fire Intensity</td>
<td>Non-combustible; Material does not burn.</td>
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<tr>
<td>Reactions That Release Gases or Vapours</td>
<td>Fire or heating may produce irritating and/or toxic fumes, including ammonia, oxides of Nitrogen and oxides of Phosphorus.</td>
</tr>
<tr>
<td>Release of Invisible Flammable Vapours and Gases</td>
<td>No information available.</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

Reacts with alkalis releasing ammonia. Reacts with methenamine, causing slow evolution of formaldehyde. May be
General Information
mildly corrosive to aluminium and steel.

Chemical Stability
Stable under recommended conditions of storage and handling.

Conditions to Avoid
Avoid dust formation. To avoid thermal decomposition, do not overheat.

Materials to Avoid
Incompatible/reactive with strong acids, alkalis, oxidising agents; copper and its alloys; methenamine, magnesium, hypochlorites.

Hazardous Decomposition
No decomposition if used and stored according to specifications. Fire or heating may produce irritating and/or toxic fumes, including ammonia, oxides of Nitrogen and oxides of Phosphorus.

Hazardous Polymerisation
Not expected to occur.

11. TOXICOLOGICAL INFORMATION

General Information
Information on possible routes of exposure:
- Ingestion: Low toxicity. Ingestion of large quantities may result in gastrointestinal irritation, nausea and vomiting.
- Eye contact: Low to moderate irritant. Contact may result in (physical) irritation, lacrimation, pain and redness.
- Skin contact: Low to moderate irritant. Prolonged or repeated contact may result in irritation and rash.
- Inhalation: Low irritant. Overexposure may result in mucous membrane irritation (of the nose and throat) with coughing.
  Chronic effects: Ingestion of large quantities may also result in serious disturbances in calcium metabolism.

Carcinogen Category
None

12. ECOLOGICAL INFORMATION

Ecotoxicity
Aquatic toxicity:
- LC50, Freshwater fish (Oncorhynchus mykiss): >85.9 mg/L (96 h) static [OECD Guideline 203].
- EC50, Freshwater invertebrates (Daphnia carinata): 1,790 mg/L (72 h) Read-across, single-superphosphate [APHA-1975].
- EC50, Freshwater algae (Selenastrum capricornutum): >100 mg/L (72 h) Read-across, ammonium dihydrogenorthophosphate [OECD 201].
  Toxicity to microorganisms:
- EC50, Bacteria (Activated sludge, domestic), respiration rate: >100 mg/L (3 h) Read-across, diammonium hydrogenorthophosphate [OECD 209].

Persistence/Degradability
Ready biodegradation tests are not applicable since the substance is inorganic.
In aqueous solution, ammonium dihydrogen orthophosphate is completely dissociated into the ammonium ion (NH4+) and the phosphate anion (PO4 3-). Hydrolysis of the substance does not occur, and it is also not susceptible to photodegradation.

Mobility
This substance is highly water soluble and dissociating. Low potential for adsorption to soil (based on substance properties).

Environmental Fate
Product may act as a plant nutrient and cause eutrophication. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Bioaccumulation Potential
Simple inorganic salts with high aqueous solubility will exist in a dissociated form in an aqueous solution; Such a substance has a low potential for bioaccumulation.

Environmental Impact
No Data Available

13. DISPOSAL CONSIDERATIONS

General Information
Can be reused without reprocessing if uncontaminated. If contaminated with other materials, dispose of to an approved landfill site and in accordance with local/regional/national regulations.

Special Precautions for Land Fill
No information available.

14. TRANSPORT INFORMATION
Land Transport (New Zealand)  
NZS5433

<table>
<thead>
<tr>
<th>Proper Shipping Name</th>
<th>Monoammonium phosphate (MAP)</th>
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</thead>
<tbody>
<tr>
<td>Class</td>
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</tr>
<tr>
<td>Subsidiary Risk(e)</td>
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<tr>
<td>UN Number</td>
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<tr>
<td>Hazchem</td>
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<tr>
<td>Pack Group</td>
<td>No Data Available</td>
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<tr>
<td>Special Provision</td>
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</tr>
<tr>
<td>Comments</td>
<td>NON-DANGEROUS GOODS: Not regulated for LAND transport.</td>
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Sea Transport  
IMDG Code

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<tr>
<th>Proper Shipping Name</th>
<th>Monoammonium phosphate (MAP)</th>
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</thead>
<tbody>
<tr>
<td>Class</td>
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</tr>
<tr>
<td>Subsidiary Risk(e)</td>
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<tr>
<td>UN Number</td>
<td>No Data Available</td>
</tr>
<tr>
<td>Hazchem</td>
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<tr>
<td>Pack Group</td>
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</tr>
<tr>
<td>Special Provision</td>
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<td>EMS</td>
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<td>Marine Pollutant</td>
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<td>Comments</td>
<td>NON-DANGEROUS GOODS: Not regulated for SEA transport.</td>
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</table>

Air Transport  
IATA DGR

<table>
<thead>
<tr>
<th>Proper Shipping Name</th>
<th>Monoammonium phosphate (MAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
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<tr>
<td>Subsidiary Risk(e)</td>
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<tr>
<td>UN Number</td>
<td>No Data Available</td>
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<tr>
<td>Hazchem</td>
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<td>Pack Group</td>
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<tr>
<td>Special Provision</td>
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<tr>
<td>Comments</td>
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</tr>
</tbody>
</table>

15. REGULATORY INFORMATION

General Information  
AMMONIUM PHOSPHATE is listed in Appendix B of the SUSMP (Low toxicity; Any use).

Poisons Schedule (Aust)  
Not Scheduled

Environmental Protection Authority (New Zealand)  
Hazardous Substances and New Organisms Amendment Act 2015

Approval Code  
HSR002768
National/Regional Inventories

Australia (AICS) Listed
Canada (DSL) Not Determined
Canada (NDSL) Not Determined
China (IECSC) Not Determined
Europe (EINECS) 231-764-5
Europe (REACh) Not Determined
Japan (ENCS/METI) Not Determined
Korea (KECI) Not Determined
Malaysia (EHS Register) Not Determined
New Zealand (NZIoC) Listed
Philippines (PICCS) Not Determined
Switzerland (Giftliste 1) Not Determined
Switzerland (Inventory of Notified Substances) Not Determined
Taiwan (NCSR) Not Determined
USA (TSCA) Not Determined

16. OTHER INFORMATION

Related Product Codes
MOAMMB1000, MOAMMB1001, MOAMMB1002, MOAMMB1003, MOAMMB1004, MOAMMB1005, MOAMMB2000, MOAMMF1000, MOAMMF1001, MOAMMF1002, MOAMMF1003, MOAMMF1004, MOAMMF1005, MOAMMF1006, MOAMMF1007, MOAMMF1008, MOAMMF1009, MOAMMF1010, MOAMMF1011, MOAMMF1012, MOAMMF1013, MOAMMF1014, MOAMMF1015, MOAMMF1016, MOAMMF1020, MOAMMF1033, MOAMMF1040, MOAMMF1050, MOAMMF2000, MOAMMF2500, MOAMMF3000, MOAMMF4000, MOAMMF4010, MOAMMO0200, MOAMMO0201, MOAMMO0300, MOAMMO0301, MOAMMO0400, MOAMMO0500, MOAMMO0600, MOAMMO0700, MOAMMO0800, MOAMMO0801, MOAMMO0802, MOAMMO0805, MOAMMO0810, MOAMMO0812, MOAMMO0880, MOAMMO0890, MOAMMO0891, MOAMMO0892, MOAMMO0893, MOAMMO0895, MOAMMO0898, MOAMMO0899, MOAMMO0900, MOAMMO1000, MOAMMO1001, MOAMMO1002, MOAMMO1003, MOAMMO1004, MOAMMO1005, MOAMMO1006, MOAMMO1007, MOAMMO1008, MOAMMO1009, MOAMMO1010, MOAMMO1011, MOAMMO1012, MOAMMO1013, MOAMMO1014, MOAMMO1015, MOAMMO1016, MOAMMO1017, MOAMMO1018, MOAMMO1019, MOAMMO1020, MOAMMO1021, MOAMMO1022, MOAMMO1023, MOAMMO1024, MOAMMO1025, MOAMMO1026, MOAMMO1027, MOAMMO1028, MOAMMO1029, MOAMMO1044, MOAMMO1100, MOAMMO1400, MOAMMO1500, MOAMMO1501, MOAMMO1502, MOAMMO1503, MOAMMO1504, MOAMMO1550, MOAMMO1551, MOAMMO1600, MOAMMO1601, MOAMMO1610, MOAMMO1650, MOAMMO1700, MOAMMO1800, MOAMMO1801, MOAMMO1802, MOAMMO1803, MOAMMO1804, MOAMMO1805, MOAMMO1806, MOAMMO1807, MOAMMO1808, MOAMMO1809, MOAMMO1810, MOAMMO1811, MOAMMO1812, MOAMMO1813, MOAMMO1814, MOAMMO1815, MOAMMO1816, MOAMMO1817, MOAMMO1818, MOAMMO1819, MOAMMO1820, MOAMMO1821, MOAMMO1822, MOAMMO1823, MOAMMO1824, MOAMMO1825, MOAMMO1826, MOAMMO1827, MOAMMO1828, MOAMMO1830, MOAMMO1900, MOAMMO2000, MOAMMO2001, MOAMMO2100, MOAMMO2101, MOAMMO2200, MOAMMO2300, MOAMMO2400, MOAMMO2401, MOAMMO2450, MOAMMO2451, MOAMMO2500, MOAMMO2501, MOAMMO2600, MOAMMO2800, MOAMMO2801, MOAMMO2802, MOAMMO2805, MOAMMO2806, MOAMMO2807, MOAMMO2810, MOAMMO2812, MOAMMO2900, MOAMMO2905, MOAMMO3000, MOAMMO3100, MOAMMO3105, MOAMMO3300, MOAMMO3301, MOAMMO3305, MOAMMO3306, MOAMMO3310, MOAMMO3311, MOAMMO3315, MOAMMO3320, MOAMMO3350, MOAMMO3360, MOAMMO3380, MOAMMO3500, MOAMMO3501, MOAMMO3502, MOAMMO3600, MOAMMO3700, MOAMMO3800, MOAMMO3900, MOAMMO4000, MOAMMO4001, MOAMMO4100, MOAMMO4200, MOAMMO4500, MOAMMO4900, MOAMMO4901, MOAMMO4902, MOAMMO4905, MOAMMO4906, MOAMMO4910, MOAMMO4911, MOAMMO4912, MOAMMO5000, MOAMMO5001, MOAMMO5002, MOAMMO5100, MOAMMO5105, MOAMMO5106,
TWA  Time Weighted Average
ug/24H  Micrograms per 24 Hours
UN  United Nations
wt  Weight