Material Safety Data Sheet
Roots Organics HP2

Last Revision: September, 2006

Emergency Phone: (541) 913-9612

Product Identification

Name: HP2
Chemical description: Soluble phosphate extracted from Guano
Hazardous components: None

Company: Aurora Innovations, INC (541) 913-9612 www.aurorainnovations.org

Physical/Chemical Characteristics

Boiling point
Vapor pressure
Vapor density
Evaporation rate
Melting point
Specific gravity
pH
Solubility in water
Appearance
Odor

Above 212 F
Not determined
Not determined
Not determined
NA
1.3
3.9
Low concentration of soluble P2O5 as well as fine insoluble sediment suspension
Tan to brown thick liquid
Non-offensive chalky smell

Fire and Explosion Information

Flash point
Flammable limits
Extinguishing media
Special Fire Fighting Procedures
Special Fire and Explosion hazards

Not applicable
Not determined
Water, CO₂
No special methods required
None

Reactivity Data

Stability
Conditions to avoid
Incompatibility
Hazardous decomposition
Hazardous polymerization

Stable at normal temperatures.
High pH conditions
High pH or Calcium products may cause P2O5 precipitation
None.
Will not occur

Spill or Leak Procedures

Contain spill to prevent discharge into the environment. Absorb spill with appropriate material and flush spill site with water

Health Effects/First Aid Information

Inhalation: Help victim to fresh air, if breathing difficult administer oxygen. Consult physician.
Eyes: Will irritate on contact, wash out quickly to remove all particulate matter.

Ingestion: If swallowed contact a physician immediately for course of action.

Skin: Avoid contact may cause irritation Wash with soap and water.

Carcinogenicity: Ingredients not listed as carcinogenic in NTP or IARC listings. Not OSMA regulated

Precautions for safe handling and use:

Respiratory Protection: Not normally needed.

Ventilation: Typically none is required.

Protective gloves/clothing: Rubber or plastic if contact expected.

Eye protection: Chemical splash goggles recommended where splash hazard is possible.

Work practices: Use good housekeeping practices. Keep containers tightly closed.

Precautions for storing and handling: Avoid storage areas with high temperatures or direct sunlight.
Material Safety Data Sheet
Roots Organics Ancient Amber

Last Revision: September, 2006
Emergency Phone: (541) 913-9612

Product Identification
Name: Ancient Amber
Chemical description: Low molecular weight humic acids
Hazardous components: None

Company: Aurora Innovations, INC (541) 913-9612 www.aurorainnovations.org

Physical/Chemical Characteristics

Boiling point Above 212 F
Vapor pressure Not determined
Vapor density Not determined
Evaporation rate Not determined
Melting point NA
Specific gravity 1.1
pH 3.9
Solubility in water Completely soluble
Appearance Tan to amber clear liquid
Odor Non-offensive neutral smell

Fire and Explosion Information

Flash point Not applicable
Flammable limits Not determined
Extinguishing media Water, CO₂
Special Fire Fighting Procedures No special methods required
Special Fire and Explosion hazards None

Reactivity Data

Stability Stable at normal temperatures.
Conditions to avoid None
Incompatibility None
Hazardous decomposition None
Hazardous polymerization Will not occur

Spill or Leak Procedures

Contain spill to prevent discharge into the environment. Absorb spill with appropriate material and flush spill site with water

Health Effects/First Aid Information

Inhalation: Help victim to fresh air, if breathing difficult administer oxygen. Consult physician.
Eyes: Will irritate on contact, wash out quickly to remove all particulate matter.

Ingestion: If swallowed contact a physician immediately for course of action.

Skin: Avoid contact may cause irritation Wash with soap and water.

Carcinogenicity: Ingredients not listed as carcinogenic in NTP or IARC listings. Not OSHA regulated

Precautions for safe handling and use:

Respiratory Protection: Not normally needed.

Ventilation: Typically none is required.

Protective gloves/clothing: Rubber or plastic if contact expected.

Eye protection: Chemical splash goggles recommended where splash hazard is possible.

Work practices: Use good housekeeping practices. Keep containers tightly closed.

Precautions for storing and handling: Avoid storage areas with high temperatures or direct sunlight.
Material Safety Data Sheet
Oregonism

Last Revision: September, 2006

Product Identification

Name: Oregonism


Hazardous components: none

Company: Aurora Innovations, INC (541) 913-9612 www.aurainnovations.org

Physical/Chemical Characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.5</td>
</tr>
<tr>
<td>pH</td>
<td>6.5 @10% dispersion in water.</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Hydrophobic initially becoming soluble.</td>
</tr>
<tr>
<td>Appearance</td>
<td>Beige powder</td>
</tr>
<tr>
<td>Odor</td>
<td>Not distinctive</td>
</tr>
</tbody>
</table>

Fire and Explosion Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammable limits</td>
<td>Smolders when directly heated in flame.</td>
</tr>
<tr>
<td>Extinguishing media</td>
<td>Water, CO₂</td>
</tr>
<tr>
<td>Special Fire Fighting Procedures</td>
<td>No special methods required</td>
</tr>
<tr>
<td>Special Fire and Explosion hazards</td>
<td>Dust explosion is possible when product is finely dispersed in air.</td>
</tr>
</tbody>
</table>

Reactivity Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable at normal temperatures.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Strong winds</td>
</tr>
<tr>
<td>Incompatibility</td>
<td>None</td>
</tr>
<tr>
<td>Hazardous decomposition</td>
<td>Will not occur</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Will not occur</td>
</tr>
</tbody>
</table>

Health Effects/First Aid information

Routes of entry:

Inhalation: Dust can cause irritation of mucus membrane, sneezing and coughing. Persons allergic to spores may be sensitive.

Eyes: Will irritate on strike, wash out quickly.

Ingestion: Not toxic, but in large amounts can cause upper GI tract disturbance.

Skin: Brief contact with the skin is not toxic. Repeated or prolonged contact will dehydrate skin.

Signs/symptoms of exposure: Eye irritation and or sneezing, coughing and difficulty breathing.
Carcinogenicity: Ingredients not listed as carcinogenic in NTP or IARC listings. Not OSHA regulated.

Emergency and First Aid Procedures:

Inhalation: Help victim to fresh air. If breathing difficult, administer oxygen. Consult physician.

Eyes: Flush immediately with water for 15 minutes, lift lids. See physician if irritation persists.

Ingestion: For small amounts, drink plenty of water. More than a mouthful should be purged by vomiting, but only if the victim is conscious. Get medical help.

Skin: Wash gently with mild soap/detergent and flowing water. Wash contaminated clothing.

Precautions for Safe Handling and Use

Respiratory protection: If dusting occurs use approved respirator to eliminate exposure.

Ventilation: Exhaust fan recommended to control any dusting.

Protective gloves/clothing: Rubber or plastic recommended if repeated or prolonged contact expected.

Eye protection: Chemical splash goggles recommended where dusting is expected. Safety glasses suffice, otherwise.

Work practices: Use good housekeeping practices. Keep containers tightly closed.

Spills: Avoid creating dust when cleaning up. Scoop, shovel or sweep to labeled containers for recycling/salvage if not contaminated by other material.

Waste disposal method: Package material for removal to approved landfill

Precautions in storing and handling: Avoid storage in wet or moist areas
Material Safety Data Sheet
Soilless Mix

Last Revision: September, 2006
Emergency Phone: (541) 913-9612

Product Identification

Name: Cocofiber hydroponic and soilless media
Chemical description: Basic soil type mix containing perlite, pumice, coir(Coco fiber) and a organic fertilizer blend which physically is a loose organic and mineral combination
Hazardous components: Silica Dust

Company: Aurora Innovations, INC (541) 913-9612 www.aurorainnovations.org

Physical/Chemical Characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>Decomposes &gt;400 F</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>6.8 @10% dispersion in water</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Insoluble, except for some organic fertilizer components which have low solubility</td>
</tr>
<tr>
<td>Appearance</td>
<td>Dark brown with white specks, coarse organic solid</td>
</tr>
<tr>
<td>Odor</td>
<td>Earthy</td>
</tr>
</tbody>
</table>

Fire and Explosion Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammable limits</td>
<td>May char or smolder if exposed to fire, will not burn.</td>
</tr>
<tr>
<td>Extinguishing media</td>
<td>Water, CO₂</td>
</tr>
<tr>
<td>Special Fire Fighting Procedures</td>
<td>No special methods required</td>
</tr>
<tr>
<td>Special Fire and Explosion hazards</td>
<td>May emit corrosive fumes when charred by intense heating.</td>
</tr>
</tbody>
</table>

Reactivity Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Stable at normal temperatures.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Contact with strong oxidizers.</td>
</tr>
<tr>
<td>Incompatibility</td>
<td>Strong alkalis will release ammonia fumes.</td>
</tr>
<tr>
<td>Hazardous decomposition</td>
<td>Ammonia may form if product is strongly heated or oxidized.</td>
</tr>
<tr>
<td>Hazardous polymerization</td>
<td>Will not occur</td>
</tr>
</tbody>
</table>

Spill or Leak Procedures

If spilled, simply sweep or vacuum up spilled product, dispose as soil.
Decontamination is unnecessary. No environmental hazards.

Health Effects/First Aid Information
Inhalation: Help victim to fresh air, if breathing difficult administer oxygen. Consult physician.

Eyes: Will irritate on contact, wash out quickly to remove all particulate matter.

Ingestion: For small amounts, drink plenty of water. More than a mouthful should be purged by vomiting, but only if victim is conscious.

Skin: Wash with soap and water.

Signs/symptoms of exposure: Product components are soil like in nature and are non-toxic, non-allergenic, and non-pathogenic to mammals. No known chronic effects.

Carcinogenicity: Silica dust is listed as a carcinogen in California other ingredients not listed as carcinogenic in NTP or IARC listings. Not OSHA regulated

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**Precautions for safe handling and use:**

Respiratory Protection: Not normally needed. If dusting occurs use approved respirator to eliminate exposure.

Ventilation: Exhaust fan recommended to control dusting.

Protective gloves/clothing: Rubber or plastic recommended if repeated or prolonged contact expected.

Eye protection: Chemical splash goggles recommended where dusting is expected. Safety glasses suffice otherwise.

Work practices: Use good housekeeping practices.

Spills: Avoid creating dust when cleaning up. Scoop, shovel or sweep to labeled containers for recycling/salvage, if not contaminated by other material.

Waste Disposal method: Package material for removal to approved landfill.

Precautions for storing and handling: None
Material Safety Data Sheet
OregonismXL

Last Revision: September, 2006

Emergency Phone: (541) 913-9612

Product Identification

Name: OregonismXL
Chemical description: Endomycorrhizal, ectomycorrhizal and trichoderma fungi, as well as beneficial bacteria, organic fertilizer, humic & fulvic acids and vitamins.
Hazardous components: Vitamin B1 (Thiamine) <1%
Vitamin C (Ascorbic acid) <1%

Company: Aurora Innovations, INC (541) 913-9612 www.aurorainnovations.org

Physical/Chemical Characteristics

Boiling point Not applicable
Vapor pressure Not applicable
Vapor density Not applicable
Evaporation rate Not applicable
Melting point Decomposes >400 F
Specific gravity 0.8
pH 7.0 @10% dispersion in water
Solubility in water Insoluble suspension, except for some compost materials.
Appearance Dark brown, coarse granular solid
Odor Slight ammonia

Fire and Explosion Information

Flash point Not applicable
Flammable limits May char or smolder if exposed to fire, will not burn.
Extinguishing media Water, CO₂
Special Fire Fighting Procedures No special methods required
Special Fire and Explosion hazards May emit corrosive fumes when charred by intense heating.

Reactivity Data

Stability Stable at normal temperatures.
Conditions to avoid Contact with strong oxidizers.
Incompatibility Strong alkalies will release ammonia fumes.
Hazardous decomposition Ammonia may form if product is strongly heated or oxidized.
Hazardous polymerization Will not occur

Spill or Leak Procedures

If spilled, simply sweep or vacuum up spilled product, dispose as soil. Decontamination is unnecessary. No environmental hazards.

Health Effects/First Aid Information
Inhalation: Help victim to fresh air, if breathing difficult administer oxygen. Consult physician.

Eyes: Will irritate on contact, wash out quickly to remove all particulate matter.

Ingestion: For small amounts, drink plenty of water. More than a mouthful should be purged by vomiting, but only if victim is conscious.

Skin: Wash with soap and water.

Signs/symptoms of exposure: Product components are soil like in nature and are non-toxic, non-allergenic, and non-pathogenic to mammals. No known chronic effects.

Carcinogenicity: Ingredients not listed as carcinogenic in NTP or IARC listings. Not OSHA regulated.

Precautions for safe handling and use:

Respiratory Protection: Not normally needed. If dusting occurs use approved respirator to eliminate exposure.

Ventilation: Exhaust fan recommended to control dusting.

Protective gloves/clothing: Rubber or plastic recommended if repeated or prolonged contact expected.

Eye protection: Chemical splash goggles recommended where dusting is expected. Safety glasses suffice otherwise.

Work practices: Use good housekeeping practices. Keep containers tightly closed.

Spills: Avoid creating dust when cleaning up. Scoop, shovel or sweep to labeled containers for recycling/salvage, if not contaminated by other material.

Waste Disposal method: Package material for removal to approved landfill.

Precautions for storing and handling: Avoid storage in wet or moist areas.
Material Safety Data Sheet  
Roots Organics Extreme Serene

Last Revision: September, 2006  
Emergency Phone: (541) 913-9612

Product Identification

Name: Extreme Serene
Chemical description: Various kelp extracts, saponins
Hazardous components: None

Company: Aurora Innovations, INC (541) 913-9612 www.aurorainnovations.org

Physical/Chemical Characteristics

Boiling point: Above 212 F
Vapor pressure: Not determined
Vapor density: Not determined
Evaporation rate: Not determined
Melting point: NA
Specific gravity: 1.2
pH: 3.9
Solubility in water: Completely soluble
Appearance: Brown to black thick liquid
Odor: Non-offensive sweet smell

Fire and Explosion Information

Flash point: Not applicable
Flammable limits: Not determined
Extinguishing media: Water, CO₂
Special Fire Fighting Procedures: No special methods required
Special Fire and Explosion hazards: None

Reactivity Data

Stability: Stable at normal temperatures.
Conditions to avoid: None
Incompatibility: None
Hazardous decomposition: None.
Hazardous polymerization: Will not occur

Spill or Leak Procedures

Contain spill to prevent discharge into the environment. Absorb spill with appropriate material and flush spill site with water

Health Effects/First Aid Information

Inhalation: Help victim to fresh air, if breathing difficult administer oxygen. Consult physician.
Eyes: Will irritate on contact, wash out quickly to remove all particulate matter.

Ingestion: If swallowed contact a physician immediately for course of action.

Skin: Avoid contact may cause irritation Wash with soap and water.

Carcinogenicity: Ingredients not listed as carcinogenic in NTP or IARC listings. Not OSMA regulated

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Precautions for safe handling and use:

Respiratory Protection: Not normally needed.

Ventilation: Typically none is required.

Protective gloves/clothing: Rubber or plastic if contact expected.

Eye protection: Chemical splash goggles recommended where splash hazard is possible.

Work practices: Use good housekeeping practices. Keep containers tightly closed.

Precautions for storing and handling: Avoid storage areas with high temperatures or direct sunlight.

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Material Safety Data Sheet
Roots Organics HPK

Last Revision: September, 2006

Emergency Phone: (541) 913-9612

Product Identification

Name: HPK
Chemical description: Soluble phosphate and potassium extracted from Guano and Langbeinite
Hazardous components: None

Company: Aurora Innovations, INC (541) 913-9612 www.aurorainnovations.org

Physical/Chemical Characteristics

Boiling point: Above 212 F
Vapor pressure: Not determined
Vapor density: Not determined
Evaporation rate: Not determined
Melting point: NA
Specific gravity: 1.3
pH: 3.9
Solubility in water: Low concentration of soluble P2O5 and K2O as well as fine insoluble sediment suspension
Appearance: Tan to brown thick liquid
Odor: Non-offensive chalky smell

Fire and Explosion Information

Flash point: Not applicable
Flammable limits: Not determined
Extinguishing media: Water, CO2
Special Fire Fighting Procedures: No special methods required
Special Fire and Explosion hazards: None

Reactivity Data

Stability: Stable at normal temperatures.
Conditions to avoid: High pH conditions
Incompatibility: High pH or Calcium products may cause P2O5 precipitation
Hazardous decomposition: None.
Hazardous polymerization: Will not occur

Spill or Leak Procedures

Contain spill to prevent discharge into the environment. Absorb spill with appropriate material and flush spill site with water

Health Effects/First Aid Information

Inhalation: Help victim to fresh air, if breathing difficult administer oxygen. Consult physician.
Eyes: Will irritate on contact, wash out quickly to remove all particulate matter.

Ingestion: If swallowed contact a physician immediately for course of action.

Skin: Avoid contact may cause irritation Wash with soap and water.

Carcinogenicity: Ingredients not listed as carcinogenic in NTP or IARC listings. Not OSHA regulated.

Precautions for safe handling and use:

Respiratory Protection: Not normally needed.

Ventilation: Typically none is required.

Protective gloves/clothing: Rubber or plastic if contact expected.

Eye protection: Chemical splash goggles recommended where splash hazard is possible.

Work practices: Use good housekeeping practices. Keep containers tightly closed.

Precautions for storing and handling: Avoid storage areas with high temperatures or direct sunlight.
Material Safety Data Sheet
Potting Soil Mix

Last Revision: September, 2006
Emergency Phone: (541) 913-9612

Product Identification

Name: Natural and Organic Potting soil
Chemical description: Basic soil type mix containing perlite, pumice, coir(Coco fiber), compost and an organic fertilizer blend which physically is a loose organic and mineral combination
Hazardous components: Silica Dust

Company: Aurora Innovations, INC (541) 913-9612 www.aurorainnovations.org

Physical/Chemical Characteristics

Boiling point Not applicable
Vapor pressure Not applicable
Vapor density Not applicable
Evaporation rate Not applicable
Melting point Decomposes >400 F
Specific gravity Not applicable
pH 6.8 @10% dispersion in water
Solubility in water Insoluble, except for some organic fertilizer components which have low solubility
Appearance Dark brown with white specks, coarse organic solid
Odor Earthy

Fire and Explosion Information

Flash point Not applicable
Flammable limits May char or smolder if exposed to fire, will not burn.
Extinguishing media Water, CO₂
Special Fire Fighting Procedures No special methods required
Special Fire and Explosion hazards May emit corrosive fumes when charred by intense heating.

Reactivity Data

Stability Stable at normal temperatures.
Conditions to avoid Contact with strong oxidizers.
Incompatibility Strong alkalis will release ammonia fumes.
Hazardous decomposition Ammonia may form if product is strongly heated or oxidized.
Hazardous polymerization Will not occur

Spill or Leak Procedures

If spilled, simply sweep or vacuum up spilled product, dispose as soil.
Decontamination is unnecessary. No environmental hazards.

Health Effects/First Aid Information
Inhalation: Help victim to fresh air, if breathing difficult administer oxygen. Consult physician.

Eyes: Will irritate on contact, wash out quickly to remove all particulate matter.

Ingestion: For small amounts, drink plenty of water. More than a mouthful should be purged by vomiting, but only if victim is conscious.

Skin: Wash with soap and water.

Signs/symptoms of exposure: Product components are soil like in nature and are non-toxic, non-allergenic, and non-pathogenic to mammals. No known chronic effects.

Carcinogenicity: Silica dust is listed as a carcinogen in California other ingredients not listed as carcinogenic in NTP or IARC listings. Not OSMA regulated

Precautions for safe handling and use:

Respiratory Protection: Not normally needed. If dusting occurs use approved respirator to eliminate exposure.

Ventilation: Exhaust fan recommended to control dusting.

Protective gloves/clothing: Rubber or plastic recommended if repeated or prolonged contact expected.

Eye protection: Chemical splash goggles recommended where dusting is expected. Safety glasses suffice otherwise.

Work practices: Use good housekeeping practices.

Spills: Avoid creating dust when cleaning up. Scoop, shovel or sweep to labeled containers for recycling/salvage, if not contaminated by other material.

Waste Disposal method: Package material for removal to approved landfill.

Precautions for storing and handling: None
Material Safety Data Sheet
Roots Organics Trinity

Last Revision: September, 2006

Emergency Phone: (541) 913-9612

Product Identification

Name: Trinity

Chemical description: Saponins, Amino acids, Humic acid, yeast and soy hydrolysate, Polysaccharides, Kelp extracts

Hazardous components: None

Company: Aurora Innovations, INC (541) 913-9612 www.aurorainnovations.org

Physical/Chemical Characteristics

Boiling point: Above 212 F
Vapor pressure: Not determined
Vapor density: Not determined
Evaporation rate: Not determined
Melting point: NA
Specific gravity: 1.2
pH: 3.9
Solubility in water: Reasonably soluble but includes some organic solids
Appearance: Black to brown thick liquid
Odor: Non-offensive sweet smell

Fire and Explosion Information

Flash point: Not applicable
Flammable limits: Not determined
Extinguishing media: Water, CO₂
Special Fire Fighting Procedures: No special methods required
Special Fire and Explosion hazards: None

Reactivity Data

Stability: Stable at normal temperatures.
Conditions to avoid: High pH conditions
Incompatibility: High pH
Hazardous decomposition: None.
Hazardous polymerization: Will not occur

Spill or Leak Procedures

Contain spill to prevent discharge into the environment. Absorb spill with appropriate material and flush spill site with water

Health Effects/First Aid Information

Inhalation: Help victim to fresh air, if breathing difficult administer oxygen. Consult physician.
Eyes: Will irritate on contact, wash out quickly to remove all particulate matter.

Ingestion: If swallowed contact a physician immediately for course of action.

Skin: Avoid contact may cause irritation Wash with soap and water.

Carcinogenicity: Ingredients not listed as carcinogenic in NTP or IARC listings. Not OSMA regulated

Precautions for safe handling and use:

Respiratory Protection: Not normally needed.

Ventilation: Typically none is required.

Protective gloves/clothing: Rubber or plastic if contact expected.

Eye protection: Chemical splash goggles recommended where splash hazard is possible.

Work practices: Use good housekeeping practices. Keep containers tightly closed.

Precautions for storing and handling: Avoid storage areas with high temperatures or direct sunlight.