**Komeen**

Aquatic Herbicide

**SPECIMEN**

For use in still or flowing water sites including: golf course, ornamental, fish, and fire ponds; fresh water lakes, ponds, reservoirs, fish hatcheries, industrial waters to include cooling water sources and hydroelectric reservoirs, crop and non-crop irrigation and drainage systems (canals, streams, ditches, and laterals), and potable water reservoirs.

**Active Ingredient**

Copper ethylenediamine complex (CAS# 13426-91-0) ................. 22.9%

**Other Ingredients** ............................................................... 77.1%

**TOTAL** ............................................................................. 100.0%

*Metallic copper equivalent = 8%*

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**Keep Out of Reach of Children**

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**WARNING/AIviso**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Refer to inside of label booklet for additional precautionary information and directions for use including first aid and storage and disposal.

Notice: Read the entire label before using. Use only according to label directions. Before buying or using this product, read Warranty Disclaimer and Misuse statements inside label booklet.

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**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to Komeen are barrier laminate, butyl rubber ≥14.1 mils, or nitrile rubber ≥14 mils. If you want more options, follow the instructions for category A on an EPA chemical-resistant category selection chart.

**Mixers, loaders, applicators, and other handlers must wear the following:**

- Long-sleeve shirt and long pants;
- Shoes plus socks; and
- Chemical-resistant gloves (such as nitrile or butyl rubber).

Follow manufacturer’s instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent material that have been drenched or heavily contaminated with the product’s concentrate. Do not reuse them.

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**USER SAFETY RECOMMENDATIONS**

Users should:

- Wash the outside of gloves before removing.
- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

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**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish and aquatic invertebrates. Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, do not treat more than 1/2 of the water body to avoid depletion of oxygen due to decaying vegetation. Wait at least 10 to 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State or local agency with primary responsibility for regulating pesticides before applying to public waters, to determine if a permit is required.

Certain water conditions including low pH (<6.5), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower), and “soft” waters (i.e. alkalinity less than 50 mg/L), increase the potential acute toxicity to non-target aquatic organisms. Do not use in waters containing trout or other fish species that are highly sensitive to copper if the alkalinity is less than 50 ppm. Fish toxicity generally decreases when the hardness of water increases. Komeen must not be used in ornamental ponds containing Koi.

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**DIRECTIONS FOR USE**

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Read all directions for use carefully before applying this product. Use only according to label directions.

Do not apply Komeen in a way that will contact workers or other persons, either directly or through drift; only protected handlers may be in close proximity to the mixing area or application equipment while in use. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

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**PRODUCT INFORMATION**

Komeen controls many submersed and floating aquatic plant species including hydrilla (Hydrilla verticillata), Brazilian elodea (Egeria densa), naiad (Najas spp.), coontail (Ceratophylleum demersum), elodea (Elodea canadensis), water lettuce (Pistia stratiotes), water fern (Salvinia and Azolla spp.), duckweed (Lemna and Landoltia spp.), water hyacinth (Eichhornia crassipes) and other submersed and floating aquatic weed species that are sensitive to copper. Under certain water quality conditions, such as low water hardness, Komeen may also control Eurasian watermilfoil (Myriophyllum spicatum), sago pondweed (Potamogeton pectinatus) and American pondweed (Potamogeton nodosus).

Komeen can also be effective in controlling various filamentous and macro algae, such as Cladophora, Philephora, Hydrodictyon, Chara, and Nitella, in the same use sites. Apply when weeds are actively growing. The most copper sensitive weed species require a minimum of three (3) to twenty-four (24) hours of contact with Komeen in order to provide effective control. Less susceptible species may require longer contact time or higher doses. Significant water movement may result in dilution of the treated water and reapplication may be necessary.
necessary. Susceptible aquatic weeds will generally drop below the surface of the water within 3 to 14 days after treatment. If this effect is not observed, Komeen may be re-applied after a minimum of 10 to 14 days after the initial application. Once weeds drop below the surface, it can take up to 6 weeks to realize the full effect of the treatment.

Komeen may be applied by aircraft, sprayer or spray boat as a surface spray, as a subsurface application through weighted hoses, or through injection equipment. Komeen may be applied in combination with other aquatic herbicides and algacides, or mixed with adjuvants, a polymer (except CA), or surfactants as appropriate. As a surface or subsurface application, Komeen may be applied diluted or undiluted, whichever is most suitable to ensure uniform coverage of the treated area. Apply Komeen to the area where the greatest concentration of target plants or algae are located, and in a manner that will deliver the herbicide to the target organism.

Dilution with water may be necessary at the lower application rates to ensure uniform coverage of the treated area. Dilute the required amount of Komeen with enough water to ensure even distribution with the type of equipment being used.

Use Restrictions

- Do not enter or allow others to enter treatment area until application is complete.
- Do not apply Komeen directly to, or otherwise permit it to come into contact with any desirable plants as injury may result.
- Do not apply in such a way that concentrated Komeen comes in contact with crops, ornamentals, grass or desirable plants.
- Wash spray equipment thoroughly before and after each application.

Spray Drift Management

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and method of application (e.g., ground, aerial, airblast, chemigation) can influence pesticide drift. The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size

Apply only as a medium or coarser spray (ASAE standard 572) or a volume mean diameter of 300 microns or greater for spinning atomizer nozzles.

Wind Speed

Do not apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition (approximately 3 to 10 mph), and there are no sensitive areas within 250 feet downwind.

Temperature Inversions

If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions or stable atmospheric conditions.

Other State and Local Requirements

Applicators must follow all state and local pesticide drift requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

Equipment

All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

Additional requirements for aerial applications:

- The boom length must not exceed 75% of the wingspan or 90% of the rotor blade diameter.
- Release spray at the lowest height consistent with efficacy and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.
- When applications are made with a crosswind, the swath must be displaced downwind. The applicator must compensate for this displacement at the up and downwind edge of the application area by adjusting the path of the aircraft upwind.

Additional requirements for ground boom application:

Do not apply with a nozzle height greater than 4 feet above the water.

APPLICATION INFORMATION

In lakes, reservoirs, and ponds, the application site is defined by this label as the specific location where Komeen is applied. Use the lower listed rate in soft water (less than 50 ppm alkalinity), for light infestations and less mature plants; use the higher concentration in hard water (above 50 ppm alkalinity), for dense infestations and when targeting more mature vegetation.

For aquatic weed control (including vascular plants and algae), do not exceed 1.0 ppm metallic copper during any single application; wait a minimum of 14 days between treatments, except for algae control in aquaculture ponds when fish are present. In that case, do not exceed a concentration of 0.4 ppm during any single application and wait a minimum of 10 days between treatments.

When treating slow-moving water, apply the spray solution counter to the flow of water.

### TABLE 1

<table>
<thead>
<tr>
<th>Application Concentrations For Submersed Aquatic Weed Control</th>
<th>Weed Species</th>
<th>Metallic Copper Level Required For Control (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>American pondweed (Potamogeton nodosus) (^1)</td>
<td>0.75 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Brazilian elodea (Egeria densa)</td>
<td>0.50 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Coontail (Ceratophyllum demersum)</td>
<td>0.50 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Elodea (Elodea canadensis)</td>
<td>0.50 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Eurasian watermilfoil (Myriophyllum spicatum) (^1)</td>
<td>0.75 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Hydrilla (Hydrilla verticillata)</td>
<td>0.75 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Najad (Najas sp.)</td>
<td>0.50 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Pondweed spp. (Potamogeton spp.)</td>
<td>0.75 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Sago pondweed (Potamogeton pectinatus) (^1)</td>
<td>0.50 - 1.0</td>
<td></td>
</tr>
<tr>
<td>Other susceptible submersed species</td>
<td>0.75 - 1.0</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Control generally only in low water hardness.

Komeen can also be effective on many species of algae at concentrations ranging from 0.2 to 1.0 ppm metallic copper. Follow the use directions described for aquatic weeds.

### TABLE 2

<table>
<thead>
<tr>
<th>Foliar Application Rates For Floating Aquatic Weed Control†</th>
<th>Weed Species</th>
<th>ppm metallic copper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duckweed (Lemna, L掌握ia, and Spinedella spp.)</td>
<td>0.75 - 1</td>
<td></td>
</tr>
<tr>
<td>Water fern (Salvinia and Azolla spp.)</td>
<td>0.75 - 1</td>
<td></td>
</tr>
<tr>
<td>Water hyacinth (Eichhornia crassipes)</td>
<td>0.75 - 1</td>
<td></td>
</tr>
<tr>
<td>Water lettuce (Pistia stratiotes)</td>
<td>0.5 - 0.75</td>
<td></td>
</tr>
</tbody>
</table>

† The addition of a surfactant is recommended to improve efficacy on floating plants. Follow surfactant product labeling instructions for application rates and use directions. Add Komeen and appropriate surfactant to a recommended minimum of 50 gallons of spray solution per surface acre. Use an adequate spray volume to ensure good coverage of the plant. Do not exceed 3.34 gallons of Komeen per acre foot.

### Application Rate Calculation

For large bodies of water, determine the size (in acres) and the average depth (in feet) of the area to be treated. Application rates are calculated by using the following formula to obtain the appropriate copper concentration:

\[
\text{Desired concentration of copper (ppm)} \times \text{Average depth of water (feet)} \times 0.34 = \text{Gallons of Komeen per surface acre}
\]

To calculate the area and average depth of a lake or pond, use the following formulas and conversion factors. All measurements (length, width, radius, depth) should be in feet.

**Formulas**

- Area of a square or rectangle (ft²) = length x width
- Area of a circle (ft²) = radius x radius x 3.14
- Average depth (ft) = sum of all depth measurements \(\div\) number of measurements (The more measurements taken, the more accurate the average depth will be.)

**Conversion Factors**

- 1 gallon = 4 quarts or 8 pints or 16 cups or 128 fluid ounces
- 1 quart = 2 pints or 4 cups or 32 fluid ounces
- 1 acre = 43,560 square feet
- 1 acre-foot = 43,560 cubic feet = 325,762 gallons = 2,720,000 pounds

### TABLE 3

<table>
<thead>
<tr>
<th>Average Water Depth of Treatment Site (feet)</th>
<th>Gallons of Komeen per Surface Acre to Achieve the Desired Copper Concentration†</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5 ppm</td>
<td>0.75 ppm</td>
</tr>
<tr>
<td>1.0 ppm</td>
<td></td>
</tr>
<tr>
<td>0.5 ppm</td>
<td>1.7</td>
</tr>
<tr>
<td>0.75 ppm</td>
<td>2.5</td>
</tr>
<tr>
<td>1.0 ppm</td>
<td>3.3</td>
</tr>
<tr>
<td>2</td>
<td>3.3</td>
</tr>
<tr>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>4</td>
<td>7.5</td>
</tr>
<tr>
<td>6</td>
<td>10.0</td>
</tr>
<tr>
<td>8</td>
<td>12.5</td>
</tr>
<tr>
<td>10</td>
<td>15.0</td>
</tr>
<tr>
<td>15</td>
<td>22.5</td>
</tr>
<tr>
<td>20</td>
<td>30.0</td>
</tr>
<tr>
<td>25</td>
<td>33.4</td>
</tr>
</tbody>
</table>

† For surface applications, dilute Komeen with water in a minimum ratio of 4:1 (Komeen:water). For subsurface applications, no dilution is required.
For smaller bodies of water, determine the size (in square feet) and the average depth (in feet) of the area to be treated.

<table>
<thead>
<tr>
<th>Average Water Depth of Treatment Site (feet)</th>
<th>Fluid Ounces (^1) of Komeen per 1,000 ft (^2) to Achieve the Desired Copper Concentration (^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.5 ppm</td>
</tr>
<tr>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>2</td>
<td>9.8</td>
</tr>
<tr>
<td>3</td>
<td>14.7</td>
</tr>
<tr>
<td>4</td>
<td>19.6</td>
</tr>
<tr>
<td>5</td>
<td>24.5</td>
</tr>
<tr>
<td>6</td>
<td>29.4</td>
</tr>
<tr>
<td>7</td>
<td>34.4</td>
</tr>
<tr>
<td>8</td>
<td>39.3</td>
</tr>
<tr>
<td>9</td>
<td>44.2</td>
</tr>
<tr>
<td>10</td>
<td>49.1</td>
</tr>
</tbody>
</table>

\(^1\) When treating low volumes and measurements in tablespoons is desired, multiply the volume in fluid ounces by 2 to get the volume in tablespoons (one fluid ounce contains two tablespoons).

\(^2\) For surface applications, dilute Komeen with water in a minimum ratio of 4:1 (Komeen:water). For subsurface applications, no dilution is required.

**METHODS OF APPLICATION**

**Surface Application**

Spray Komeen from shore or boat across the surface of the targeted area. Surface applications generally are recommended near shorelines and in shallower waters, and may be made from shore into shallow water.

**Subsurface Application**

In deeper water, it is recommended to make a subsurface application of Komeen at listed rates through weighted trailing hoses in order to deliver application mix to the water depth of target vegetation. Do not drag hoses on the bottom. Do not exceed 3.34 Gallons of Komeen per acre foot.

**Adjuvants/Surfactants**

Adjuvants or surfactants may be added to Komeen or to a Komeen/water premix to improve efficacy. Silicone surfactants are not recommended for use on floating plants as they generally can cause the plant to sink causing the spray solution to be washed off the plant. Adjuvants/ surfactants may also enhance performance on other species. Consult the manufacturer’s recommendations regarding the use of these products for improved control.

**Aerial Application**

Dilute Komeen with water in a minimum ratio of 4:1 (Komeen:water). Apply the listed rate of Komeen in a recommended minimum of 10 gallons of total spray solution per surface acre. Add the listed rates of a drift control or sinking agent to the spray solution. Maintain constant agitation during addition of a polymer (except CA – polymers not approved for use with Komeen) and continue throughout the application.

**Tank Mix**

Komeen may be tank mixed with other herbicides for control of a broader weed spectrum. Do not mix concentrates in tank without first adding water. To ensure compatibility, a jar test is recommended before field application. Komeen must not be mixed with any product containing a label prohibition. For best results, apply Komeen/endothall combinations at a recommended ratio of 4:3 v/v Komeen to endothall formulated product (e.g., Aquathol® K/ Hydrothol® 191).

**Flowing Water Treatment**

**Drip System or Metering Pump Application for Canals, Ditches, and Lateral**

For optimal control, apply Komeen as soon as submerged macrophytes or algae begin active growth or interfere with normal delivery of water (clogging of lateral head gates, suction screens, weed screens, and/or siphon tubes). Delaying treatment could perpetuate the problem causing massing and competing of plants. Heavy concentrations and slow flows may result in pooling or uneven product distribution resulting in unsatisfactory control. Under these conditions repeated applications or increasing the water flow rate during application may be necessary.

To achieve desired control with Komeen in flowing waters, maintain a minimum exposure period of three hours at a concentration of 0.5 to 1.0 ppm. Other factors to consider include: plant species, density of infestation and water temperature and hardness. Longer contact times and the highest rates may be required for less susceptible species or in difficult treatment conditions (e.g. dense weed beds, hard water, fast flowing water).

1. Treatment with Komeen requires accurate calculations of water flow rates. Devices that provide accurate flow measurements such as weirs or orifices are the preferred method; however, the volume of water to be treated may also be estimated using the following formula:

   \[
   \text{Cubic feet per second (cfs)} = \frac{\text{average width (feet) \times average depth (feet)}}{\text{average velocity (feet/second) \times 0.9}}
   \]

   The velocity can be estimated by determining the length of time it takes a floating object to travel a defined distance. Divide the distance (feet) by the time (seconds) to estimate velocity (feet/seconds). This measure should be repeated 3 times at the intended application site to calculate the average velocity.

2. After accurately determining the water flow rate in cubic feet per second(s) (cfs) or gallons/minute, find the corresponding drip rate in Table 5. For flow rates not listed in the table, multiply the flow rate by the recommended amount of Komeen in 1 cfs for application rates or use the below formula.

   \[\text{cfs X 1.1 X desired concentration of metallic copper (ppm)} = \text{quarts/hour of application}\]

**Table 5**

<table>
<thead>
<tr>
<th>Komeen Application Drip or Injection Rates For Flowing Water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Flow Rate</strong></td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td><strong>cfs</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>100</td>
</tr>
</tbody>
</table>

Calculate the amount of Komeen needed to maintain the drip rate for a treatment period of 3 hours by multiplying quart(s)/hour by 3 or milliliters/ minute by 180. For longer injection periods, multiply dosage rate by desired time in minutes or hours as appropriate.

Rates will target up to 1.0 ppm copper concentration in the treated water for the treatment period. Lower concentrations may be used on susceptible plant species or if longer exposure/injection times are maintained. Introduce Komeen in the channel at weirs or other turbulence-creating structures to promote the dispersion of the chemical.

Use a drum or tank equipped with a valve or other volume control device that can be calibrated to maintain a constant drip rate. Use a stopwatch and appropriate measuring container to set the desired drip rate. Readjust accordingly if the canal flow rate changes during the treatment period.

A small pump or other metering device may be used to meter Komeen into the water more accurately. Application can be made using diluted or undiluted material.
Results can vary depending upon species and density of vegetation, desired distance of control and flow rate, and impact of water quality on Komeen and efficacy. Periodic maintenance treatments may be required to maintain seasonal control (every 2 to 6 weeks). In addition, Komeen can be used in a rotational program with other herbicides labeled for flowing water for an integrated management approach. It is recommended to consult a SePRO Technical Specialist to determine optimal use rate location of treatment stations and duration of treatment period under local conditions.

**Irrigation Ponds or Reservoirs**

When applying to irrigation ponds or reservoirs, it is best to hold water for a minimum of 3 hours before irrigating to ensure proper exposure of Komeen at targeted rates to plants. If water is to be continually pumped from the treated system during application, application techniques (drip, injection, or multiple spray applications) should be made to compensate for dilution of Komeen within the targeted area.

**STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage and disposal.

**Pesticide Storage:** Store in a cool dry place. Do not store near feed or foodstuffs. In case of leak or spill, use absorbent materials to contain liquids and dispose in a manner consistent with the pesticide disposal instructions.

**Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

**Nonrefillable Container Handling (rigid, larger than 5 gal):** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, treatment area, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat the procedure two more times. Then offer for recycling (if available) or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Nonrefillable Container Handling (rigid, 5 gallons or less):** Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, treatment area, or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling (if available) or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Warranty Disclaimer:** SePRO Corporation warrants that this product conforms to the chemical description on the product label. Testing and research have also determined that this product is reasonably fit for the uses described on the product label. To the extent consistent with applicable law, SePRO Corporation makes no other express or implied warranty of fitness or merchantability nor any other express or implied warranty and any such warranties are expressly disclaimed.

**Misuse:** Federal law prohibits the use of this product in a manner inconsistent with its label directions. To the extent consistent with applicable law, the buyer assumes responsibility for any adverse consequences if this product is not used according to its label directions.

In no case shall SePRO Corporation be liable for any losses or damages resulting from the use, handling or application of this product in a manner inconsistent with its label.

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