Brandt T.A.C.

Algaecide/Bactericide* for Lakes and Ponds

* Non-public health

Active Ingredient

Copper Sulfate Pentahydrate**	20.0%
Inert Ingredients	80.0%
Total	100.0%

**Metallic copper equivalent = 5.0%. CAS# 7758-99-8

EPA Reg. No. 65109-1-48813

Non-Flammable. Do Not Freeze. 9.9 lbs. per gallon. 1.188 Kg/L

KEEP OUT OF REACH OF CHILDREN

DANGER/PELIGRO

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

FIRST AID

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth to mouth, if possible. Call a poison control center or doctor for treatment advice.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

Have the product container or label with you when calling a poison control center or doctor or going for treatment.
For emergency information concerning this product, you may also contact the National Pesticides Information Center (NPIC) at 1-800-858-7378 Monday - Friday, 7:30 am to 3:30 pm Pacific Time (NPIC Web site: www.npic.orst.edu).

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Danger: Corrosive. Causes irreversible eye damage. Harmful if swallowed. Harmful if absorbed through skin or on clothing. Do not get in eyes, on skin or on clothing.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers, loaders, applicators and other handlers must wear the following: Long-sleeved shirt and long pants, shoes plus socks, chemical resistant gloves made of any waterproof material, and goggles or face shield.

Some materials that are chemical-resistant to this product are nitrile and polyvinyl chloride. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

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

USER SAFETY RECOMMENDATIONS

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

Environmental Hazards

FISH AND AQUATIC ORGANISMS: 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 hazard, do not treat more than ½ 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. In regions where ponds freeze in winter, treatment should be done 6 to 8 weeks before expected freeze time to prevent masses of decaying algae under an ice cover. 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.

This pesticide is toxic to some fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. For terrestrial uses, do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash-waters or rinsate.

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 potential acute toxicity to non-target aquatic organisms. Trout and other species of fish may be killed at application rates recommended on the label, especially in soft or acidic waters as described above. Do not contaminate water when disposing of equipment wash-waters or rinsate.

Potable water sources treated with copper products may be used as drinking water only after proper additional potable water treatments.

To protect listed species in California, contact your County Agricultural Commissioner or refer to the Department of Pesticide Regulation's PRESCRIBE Internet Database: http://www.cdpr.ca.gov/docs/endspec/prescint.htm

Application and Handling Equipment

Application, handling or storage equipment MUST consist of either fiberglass, PVCs, polypropylenes, most plastics, or stainless steel. Never use mild steel, nylon, brass, aluminum or copper around, or to store or handle full strength BRANDT T.A.C. Always rinse equipment free and clean of BRANDT T.A.C. each night with plenty of fresh clean water.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Do not enter or allow others to enter until sprays have dried. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the agency responsible for pesticide regulation.

BRANDT

Manufactured By / For:
Brandt Consolidated, Inc., 2935 South Koke Mill Road
Springfield, Illinois 62711 USA www.brandt.co 800 300 6559

GENERAL INFORMATION: BRANDT T.A.C. is used for the suppression of bacterial odors and toxic gases in ponds containing organic matter or algae/ bacteria. BRANDT T.A.C. may also be used to control algae and bacteria in ponds. In still waters, BRANDT T.A.C. has a vertical dispersion rate of 20 feet per hour and a horizontal dispersion rate of 25 feet per hour. In flowing waters, dispersion is faster depending on turbulence and velocity of flow. Do not apply more than 1.0 ppm as metallic copper.

Note: Effectiveness of BRANDT T.A.C. decreases as the alkalinity increases and is significantly reduced when the alkalinity exceeds approximately 150 ppm as $CaCO_3$. As alkalinity increases, application rates towards the higher end of stated use ranges may be required.

For potable water systems: If the impounded water is a source of potable water or for potable water systems or for livestock watering systems, do not exceed one gallon in 60,000 gallons under any circumstances (1 ppm metallic copper). Potable water sources treated with copper products may be used as drinking water only after proper additional potable water treatments. (Review General Algae Control section of this label before proceeding).

If BRANDT T.A.C. is to be sprayed:

- DO NOT apply during temperature inversions;
- Apply only when wind velocity favors on-target deposition (approximately 3 to 10 mph)
- DO NOT apply if wind velocity exceeds 15 mph;
- Use only medium or coarse spray nozzles in boat mounted booms, ground booms,aerial applications or hand sprayers.
- For boat mounted booms, booms should be mounted so nozzle tips are no more than 2 feet above the water's surface.

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, and 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. 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 requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

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

GENERAL ALGAE CONTROL: For algae control, apply in late spring or early summer when algae first appear. The dosages are variable and depend upon algae species, water hardness, water temperature, amount of algae present, as well as whether water is clear, turbid, flowing or static. Preferably, the water should be clear with temperatures above 60 degrees F (15.6 degrees C). Higher dosages are required at lower water temperatures, higher algae concentrations and hard waters. Effective control of most algae species can be obtained with copper levels between 0.2 – 1.0 ppm metallic copper. Application should be done by pouring or spraying BRANDT T.A.C. DIRECTLY FROM THE CONTAINER INTO THE LAKES AND PONDS. Several application points speed up dispersal. Static water requires less chemical for algae control than does flowing water. Use higher dosages to control chara, nitella, and filamentous algae (pond scum) and lower dosages to control planktonic algae. If there is uncertainty about the dosage begin with a lower dose and increase until control is achieved or until the maximum allowable level has been reached. **Do not apply more than 1.0 ppm as metallic copper.**

Before treating bodies of water, consult proper state authorities such as the Fisheries Commission or Conservation Department to obtain any necessary permits. **NOTE**: If treated water is to be used as a source of potable water, the metallic copper residual must not exceed 1 ppm.

CALCULATIONS FOR THE AMOUNT (VOLUME IN CUBIC FEET) OF WATER IMPOUNDED: If the amount of water to be treated is unknown, calculate water volume as follows: (1) Obtain surface area by measuring of regular shaped ponds or mapping of irregular ponds or by reference to previously recorded engineering data or maps. (2) Calculate average depth by sounding in a regular pattern and taking the mean of these readings or by reference to previously obtained data. (3) Multiply surface area in feet by average depth in feet to obtain cubic feet of water volume. (4) Alternatively, multiply surface area in acres by average depth in feet to obtain total acre/feet of water. (5) For circular or elliptical shaped bodies of water, volume can be obtained by multiplying 3.14 X the radius of the body of water squared (radius X radius) X the average depth [(2) above].

CALCULATE GALLONS OF WATER TO BE TREATED AS FOLLOWS: (1) To find the capacity of a water storage containment or impounded waters in gallons, multiply the water volume in cubic feet times 7.5. or (2) if acre/ft calculations were used multiply acre/ft by 326,000 to obtain total gallons of water. (3) For flowing water measure in cubic feet per second- 1 C.F.S./HR = 27,000 gallons of water.

CALCULATIONS OF ACTIVE INGREDIENT TO BE ADDED IF RECOMMENDED USAGE RATE IS EXPRESSED IN PARTS PER MILLION (PPM): 1 gallon of BRANDT T.A.C. in 60,000 gallons of water yields 1 ppm of dissolved copper (metallic copper). If desired application rate is expressed in ppm: (1) Divide total gallons to be treated by 60,000 to yield total gallons of BRANDT T.A.C. required to yield 1 ppm metallic copper. (2) Multiply the foregoing by the desired ppm treatment level to yield actual gallons required. Example: 240,000 gallons to be treated divided by 60,000 = 4 Gallons BRANDT T.A.C. to achieve 1 ppm metallic copper. If a 0.2 ppm level is required then, 4 X 0.2 = 0.8 gallons BRANDT T.A.C. is required to achieve a 0.2 ppm metallic copper concentration.

SPECIFIC INSTRUCTIONS

To Control Algae in Impounded waters, Lakes and Ponds: Apply 1 pint of BRANDT T.A.C. in each 7,500-300,000 gallons of water to be treated. One pint (16 fluid ounces) of BRANDT T.A.C. per each 7,500 to 300,000 gallons yields a range of 1 ppm (7,500 gallons) metallic copper down to 0.025 ppm (300,000 gallons) metallic copper. For best results, apply to warm, still water on a sunny day when algae are near the surface.

To Control Algae in Aquaculture Systems: Apply 1 pint of BRANDT T.A.C. in each 7,500-300,000 gallons of water to be treated. One pint (16 fluid ounces) of BRANDT T.A.C. per each 7,500 to 300,000 gallons yields a range of 1 ppm (7,500 gallons) metallic copper down to .025 ppm (300,00 gallons) metallic copper. If fish are present in the aquaculture systems, either remove fish or do not exceed 2.6 fl oz of product / 3000 gallons of water (0.4 ppm metallic copper). For best results, apply to warm, still water on a sunny day when algae are near the surface.

There are several methods by which to apply BRANDT T.A.C. to impounded water. It may be applied from either the shoreline or from a boat. In smaller lakes and ponds, shoreline application through an electrically or manually operated hand spray device is preferred. In larger lakes, ponds and reservoirs, application by boat or direct injection into the influent stream is preferred.

Shoreline Application: In smaller lakes and ponds, BRANDT T.A.C. is most easily applied by using either an electrically or manually operated hand spray device (sprayer). REMOVE THE SPRAY NOZZLE from the sprayer so that, when activated, the spray device dispenses a straight stream rather than a spray pattern. This will minimize or eliminate the potential for any drift and enable you to project the dispensed stream of BRANDT T.A.C. further away from the shore line than if the spray nozzle were attached. Always use a sprayer which is constructed of materials listed in the Storage and Handling Equipment listed on this label. Only use this method on calm days or when wind is less than 10 mph. Never use this method of application when wind is in excess of 15 mph or when you must stand down wind of the direction of application or in any position that could expose you to drift. Never treat more than ½ of the body of water at one time. Wait 10 to 14 days between applications.

1. Based on your developed knowledge of the body of water, mark two points on opposing shorelines where, when drawing an imaginary line between them, half the volume of water is on each side of the line. Verify your water volume calculations.
2. Determine the amount of BRANDT T.A.C. required to treat the portion of the body of water selected in #1 above. Dilution of BRANDT T.A.C. with clean water prior to application may be done so that uniform distribution is more easily accomplished.
3. Beginning at one mark on the shoreline, simultaneously begin walking towards the other mark while projecting a stream of BRANDT T.A.C. or BRANDT T.A.C. solution to a point approximately 5 feet from the shoreline.
4. When the opposing mark has been reached, reverse course and while walking back to the beginning mark, project a stream approximately 10 feet from the shoreline.
5. Repeat steps 3 & 4, increasing the distance of stream projection from the shoreline by 5 feet each time, until all BRANDT T.A.C. is dispensed.

Boat Application: In larger bodies of water, probably the most satisfactory and simplest method is to apply BRANDT T.A.C. within the body of water from a boat. A small pump mounted in the boat can easily be used for this purpose. When using this method, BRANDT T.A.C. is pumped from either its original container or a nurse tank (containing the amount of BRANDT T.A.C. required for the application) into a hose (or manifolded gang of hoses) where hose(s) are trailing over the side or stern (back) of the boat and where the hose outlet is just below the surface of the water. While BRANDT T.A.C. may be sprayed over the surface of the water, application through hoses eliminates or minimizes risk of drift.

If spraying, re-read about spraying application in the General Information portion of this label. Mount spray boom or nozzles so that nozzle height is no more than 2 feet above water surface. Alternatively, begin treatment along the shoreline and proceed outward until one-third to one-half of the total area has been treated. Follow procedure outlined for shore application for lakes, ponds, and reservoirs contained on this label.

To apply by boat, the customary method is to make successive parallel applications across the body of water where the distance between each parallel line of application is from 20 to 200 feet. Initial application should be made along a line following the shoreline, with subsequent lines of application being parallel to the initial line of application and made progressively further away from the shoreline.

1. Based on your developed knowledge of the body of water, mark two points on opposing shorelines where, when drawing an imaginary line between them, not more than ½ the total volume of water within the lake, pond, or reservoir is on each side of the line.
2. Determine the total amount of BRANDT T.A.C. required for treating the selected portion of the body of water. (Example: 40 gallons)
3. Determine the distance between your parallel lines of application.
4. Based on the surface area of the portion and shape of the body of water to be treated and the intended distance between parallel lines of application to be made, determine the number of parallel lines of application to be made. Plot these lines reasonably to scale on chart paper.
5. Sum the length (in feet) of all parallel lines of application. The result is the total distance you will travel during application. (Example: 20,000 feet)
6. Determine the speed (in mph) at which your boat will be traveling during application and convert this to Feet Per Minute (fpm) by multiplying mph X 88 (Example: 5 mph X 88 = 440 fpm) or refer to the following table:

MPH	2	3	4	5	6	7	8	9	10
fpm	176	264	352	440	528	616	704	792	880

7. Divide the total gallons of BRANDT T.A.C. you intend to apply to the selected section of body of water by the total distance determined in #5 above. This result will provide you the fractional gallons of BRANDT T.A.C. per foot you will apply. (Example: 40 divided by 20,000 = .004 gallons/ft).
8. Multiply the fractional gallons of BRANDT T.A.C. you will apply per foot as calculated in #7 above times your travel speed in FPM. This result is the gallons per minute (gpm) at which you must set your pump. (Example 440 fpm X .004 = 0.88 gpm).
9. Navigate to your starting point, engage your pump, and begin applying BRANDT T.A.C. at your intended speed beginning close to the shoreline and proceeding outward in parallel lines of application.
10. If, at the end of application, all BRANDT T.A.C. required for the application has not been dispensed, return to a line of application which, on your application chart, is about ¼ of the way out from the shoreline. Then, following your navigation chart, continue applying until all BRANDT T.A.C. has been used.

Injection Instructions: Calculate the amount of BRANDT T.A.C. needed to maintain the drip rate for a period of 4 hours by multiplying Pints/Hr by 4 OR Fluid Ounces/Minute by 240. This dosage will maintain the copper level at the required ppm for 4 hours. BRANDT T.A.C. must be introduced at a point of turbulence to insure proper dispersion. Place the required amount of BRANDT T.A.C. into a tank equipped with a needle valve and set the drip rate as required using a stop watch and a measuring device. Alternatively, use a chemigation or dosing device calibrated and adjusted to inject the desired amounts of BRANDT T.A.C. Readjust as required if flow rates change. Distance of control will vary. Treatment points should be determined in the field and placed at required intervals for control. Periodic maintenance treatments may be required.

BRANDT T.A.C. INJECTION RATE

WATER FLOW RATE		ALGAE GROWTH			
		Moderate 1 ppm as Copper		Light 0.2 ppm as Copper	
CFS	Gal/Min	Pints/Hr	Oz/Min	Pints/Hr	Oz/Min
1	450	3.6	1.0	0.7	0.2
2	900	7.2	1.9	1.4	0.4
3	1350	10.8	2.9	2.2	0.6
4	1800	14.4	3.8	2.9	0.8
5	2250	18.0	4.8	3.6	1.0

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in a safe place away from pets and KEEP OUT OF THE REACH OF CHILDREN. Store away from excessive heat. BRANDT T.A.C. will freeze. Always keep container closed. Store BRANDT T.A.C. in its original container only. Bulk BRANDT T.A.C. shall be stored and handled in stainless steel, fiberglass, polypropylene, PVCs or plastic equipment. Keep away from galvanized pipe, brass, copper, and any nylon or aluminum storage handling equipment.

PESTICIDE DISPOSAL: Excess BRANDT T.A.C. should be disposed of through use. Do not contaminate lakes, rivers or streams as this may cause fish kill. Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, mixture or residue 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. In the event of a spill, neutralize with limestone or baking soda before disposal. May deteriorate concrete. Do not re-use empty container.

CONTAINER HANDLING: Nonrefillable container. Do not reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning if available, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by local authorities by burning. If burned, stay out of smoke.

LIMITED WARRANTY AND LIMITATION OF REMEDIES: To the extent consistent with applicable law: Seller warrants that the product conforms to the chemical description and is reasonably fit for the purpose stated on the label for the use under normal conditions but makes no other warranties of FITNESS OR MERCHANTABILITY, expressed or implied, or any other warranty if the product is used contrary to the label instructions, or under abnormal conditions or under conditions not foreseeable to the seller. In no case shall the seller be liable for more than the cost of this product to the buyer and will, in no event, be liable for any consequential, special or indirect damages (including lost profits) connected with the use or handling of this product. This product is offered and the buyer or user accepts it subject to the foregoing terms which may not be varied.

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