GROUP	M01	BACTERICIDE

Pura-fi 420

Bacteriostatic Algaecide and Bactericide

For control of algae in ponds, lagoons, dugouts and animal drinking water; control of bacterial odour in sewage, animal manure pits and organic sludges; and control of bacterial blight in highbush blueberry.

COMMERCIAL

ACTIVE INGREDIENT: Copper, present as copper sulphate pentahydrate.....5.2%

REGISTRATION NO. **32062** PEST CONTROL PRODUCTS ACT

CAUTION

CORROSIVE

POISON

READ THE LABEL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Net Contents: 10 L

DO NOT APPLY TO WATERS CONTAINING FISH WITHOUT CONSULTING DISTRIBUTOR FIRST

Advanced Greentech Solutions Ltd.
771 Keefer St.
Vancouver BC V6A 1Y6
Canada
(604) 788-401

GENERAL INFORMATION:

Pura-fi 420 is an innovative formulation that provides control of algae in ponds, dugouts, lagoons and potable water storage tanks. Use for the control of ammonia and prevention of bacterial odours in fermenting substrates, organic waste holding tanks, sewage lagoons, animal manure pits and similar applications. Pura-fi 420 also provides control of bacterial blight in highbush blueberries.

PRECAUTIONS

Wear goggles, long pants, a long-sleeved shirt and shoes plus socks during mixing/loading, application, clean-up and repair. In addition, wear chemical-resistant gloves during mixing/loading, clean-up and repair.

Remove personal protective equipment immediately after handling this product. If gloves are required on the label, wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. Remove clothing/personal protective equipment immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Discard clothing and other absorbent material that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them.

For cleaning/maintaining personal protective equipment, use detergent and hot water. Keep and wash personal protective equipment separately from other laundry.
Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 48 hours.

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 eye. Call a poison control centre 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 centre or doctor for treatment advice.

IF SWALLOWED: Call a poison control centre 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 centre or doctor. Do not give anything by mouth to an unconscious person.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

DIRECTIONS FOR USE – BACTERIOSTATIC ALGAECIDE

Dilution of 1:60,000 (16ml per 1000 litres of water) provides 1 part per million (ppm) of a biologically active form of copper (Cu2+). Use test kit to determine existing copper level before adding more product. Do not exceed 1.0 ppm of copper in drinking water.

PONDS, LAGOONS, DUGOUTS: Apply 1 litre to 60,000 - 600,000 litres of water for prevention of algal bloom. Water condition and the extent of active micro-organisms present determines the effective application rate. For permanent algae control maintain 0.5 to 1.0 ppm copper in the water. Add 1.6 ml per 1000L to increase copper by 0.1 ppm. Do not exceed 1 ppm per single application.

ALGAECIDE FOR ANIMAL DRINKING WATER TANKS: Apply 1 litre to 60,000 litres of water (1 ppm) for prevention of algal bloom. Maintain a minimum of 0.7 ppm of copper in animal drinking water. Do not exceed 1 ppm of copper in animal drinking water. Precautionary advice: Product may clean out accumulated waterline impurities. Until the waterlines are completely cleared out, impurities may cause digestive upset in the animals. After treatment flush waterlines with clean water daily for one week or until the water pipes are cleaned out completely.

BACTERIAL ODOUR CONTROL IN LIQUID SEWAGE AND ANIMAL MANURE PITS: Application rates may vary depending on the amount of organic matter, characteristics of manure or sewage, extent of bacterial activity in the pits, and degree of desired odour reduction. Basic application rate is 1 litre in 30,000 litres of sewage (2 ppm). Several pit application points speed up dispersal. Odours should be reduced in a few days. Treat added sewage once a week at 1:30,000 ratio. Treat manure lagoons 2 weeks before spraying on fields to reduce odourous air pollution. Do not exceed 2 ppm per single application.

OTHER ORGANIC (FERMENTING) SLUDGES: Apply at the rate of one litre to 24,000 – 30,000 litres of sludge (2.0 ppm – 2.5 ppm). Product must be thoroughly mixed with sludge. Do not exceed 2.5 ppm per single application.

HIGHLY CONTAMINATED PITS: Apply 24 ml to 150 litres of pit content (10 ppm). For best results treat daily. Do not exceed 10 ppm per single application.

DO NOT apply this product in a way that will contact workers or bystanders, either directly or through drift. Only protected handlers may be in the area during application.

DO NOT apply using aerial application equipment.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. For use in water wholly confined to the property of the user and where there is no outflow beyond the property limits.

ENVIRONMENTAL PRECAUTIONS – WHEN USED AS A BACTERIOSTATIC ALGAECIDE

TOXIC to aquatic organisms (copper sensitive aquatic plants, invertebrates, and fish)

When fish are present, special application procedures must be followed. Contact distributor before treating water inhabited by fish.

DIRECTIONS FOR USE - BACTERICIDE

Highbush blueberries: For control of bacterial blight (*Pseudomonas syringae pv syringae*) apply Pura-fi 420 as a foliar application at a rate of 180 – 200 ppm in 600-1200 L of water per hectare.

Table 1: Amount of Pura-fi 420 needed relative to Spray Volume:

	600 L/ha	800 L/ha	1000 L/ha	1200 L/ha
180 ppm	1.80 Litres	2.40 Litres	3.00 Litres	3.60 Litres
200 ppm	2.00 Litres	2.67 Litres	3.33 Litres	4.00 Litres

Use the higher rate when disease levels are high. First application should be made in the fall at 50% leaf drop, and a second application at 100% leaf drop. Make up to 2 additional applications at 14 day intervals, if needed, before bud break in early spring. Do not exceed 4 applications per year. Product must be used with crop oil concentrate at 494 mL/ha. Do not mix with lime sulphur. Apply by ground with handgun or tractor mounted sprayers.

SPRAY BUFFER ZONES – APPLIES TO USE AS A BACTERICIDE

Airblast application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/hr at the application site as measured outside of the treatment area on the upwind side.

Spot treatments using hand-held equipment do not require a spray buffer zone.

The spray buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Use Site		Buffer Zones (meters Required for the Protection of:				
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial Habitat
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Airblast	Blueberry (highbush)	Early Growth Stage	55	45	50	40	1
	Blueberry (highbush)	Late Growth Stage	45	35	40	30	1

ENVIRONMENTAL PRECAUTIONS – WHEN USED AS A BACTERICIDE

TOXIC to birds, small wild animals, aquatic organisms and non-target terrestrial plants. Observe buffer zones under DIRECTIONS FOR USE – BACTERICIDE.

To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands) or estuarine/marine habitats.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Pura-fi 420 contains a Group M01 bactericide. Any bacterial population may contain individuals naturally resistant to Pura-fi 420 and other Group M01 bactericides. A gradual or total loss of pest control may occur over time if these bactericides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay bactericide resistance:

- Where possible, rotate the use of Pura-fi 420 or other Group M01 bactericides with different groups that control the same pathogens.
- Use tank mixtures with bactericides from a different group that effective on the target pathogen when such use is permitted.
- Bactericide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time bactericide applications.
- Monitor treated bacterial populations for resistance development. Notify Advanced Greentech Solutions Ltd. if reduced sensitivity of the pathogen to Pura-fi 420 is suspected.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another bactericide with a different mode of action, if available.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and

pathogens.

STORAGE AND HANDLING: Store this product away from food or feed. Handling and storage equipment must be fibreglass, PVC, polypropylene, viton, aluminum or stainless steel. NEVER use nylon, copper, brass or mild steel parts or components in contact with full strength Pura-fi 420. Fabrics containing nylon or cotton will dissolve on contact with full strength Pura-fi 420. Always rinse equipment with plenty of fresh clean water. Do not allow product to freeze. Freezing will cause separation.

DISPOSAL: Dispose of Pura-fi 420 through use. Do not pour into lakes or rivers, as this may kill fish. Neutralize spills with bicarbonate of soda or lime.

DISPOSAL OF CONTAINER: Triple or pressure-rinse the empty container. Add the rinsings to the treatment site (bacteriostatic algaecide) or to the spray mixture in the tank (bactericide). Follow provincial instructions for any required additional cleaning of the container prior to its disposal. Make the empty container unsuitable for further use. Dispose of the container in accordance with provincial requirements. For information on the disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NATURE OF RESTRICTION: Aquatic, Forest or Woodland Uses - This product is to be used only in the manner authorized; consult local pesticide regulatory authorities about use permits that may be required.
RESTRICTED USES: Pura-fi 420 can be used in Municipal water supplies used as a source of potable water before it is purified for drinking purposes. Do not apply or allow discharge to lakes, flowing water or ponds with outflow.
DIRECTIONS FOR USE: Apply 1 Litre of Pura-fi 420 to 60,000 Litres of water for 1 ppm of copper. For applications in water destined for use as drinking water, those waters must receive additional and separate potable water treatment. **DO NOT** apply more than 1 ppm as metallic copper in these waters.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.