ACCEPTED

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FUNCTION AND HODERT CIDE ACT

U. S. PATENT NO. 2,927,052

EPA REG. NO. 4855-4

FOR CONTROL OF BACTERIA AND FUNCT

FOR INDUSTRIAL USE ONLY

ACTIVE INGREDIENTS:

INERT INGREDIENTS:	6.2 ⁰ 0
*COMBINED AS ALLOY METAL	
COLLOIDAL COPPER AS ELEMENTAL	.6°c
COLLOIDAL SILVER AS ELEMENTAL	3. 2 %

USE: Refer to the appropriate product bulletin -"MICRODYN for Pulpa Paper Industry" and/or "MICRODYN for Industrial Waters."

cold weather MICRODYN gels, returning it to room temperature will restore it to its original total.

CAUTION: This product may cause temporary discoloration and ar mild with an of skir line in the second wash with water.

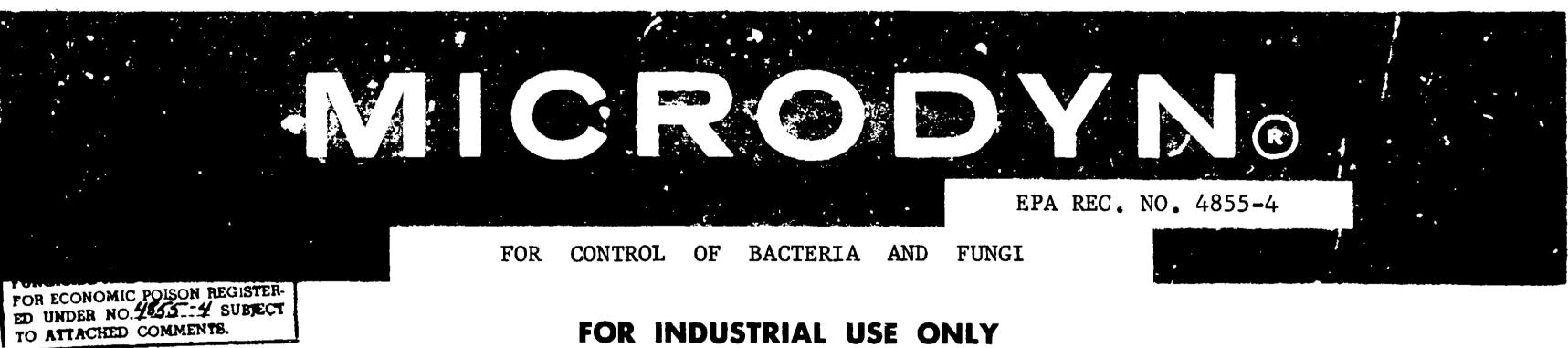
UNITED STATES



TREATED EFFLUENT SHOUTD THOSE OF A TOTAL AND DISCHARGED WHERE IT WILL DEATH. THE LARGE AND AND AND AND LARGE MATER.

CORPORATION

863 N. Orleans Street Chicago, Illinois 60610 Phone: (312) 943-1530



FOR INDUSTRIAL USE ONLY

ACTIVE INGREDIENTS:

	COLLOIDAL SILVER AS ELEMENTAL*	3.2%
	COLLOIDAL COPPER AS ELEMENTAL*	.6%
	*COMBINED AS ALLOY METAL	
INERT	INGREDIENTS:	76.2 %

USE: Refer to the appropriate product bulletin -"MICRODYN for Pulp & Paper Industry" and/or "MICRODYN for Industrial Waters." cold weather MICRODYN® gels, returning it to room temperature will restore it to its original state. If in

CAUTION: This product may cause temporary discoloration and/or mild irritation of skin. In case of contact, wash with water.

COLLOIDAL SILVER AS ELEMENTAL .

COLLOIDAL COPPER AS ELEMENTAL COMBINED AS ALLOY METAL

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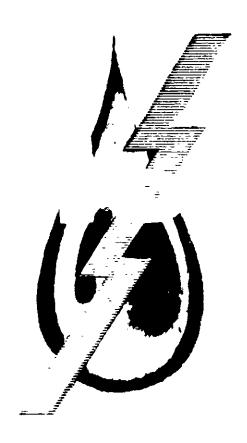
INERT INGREDIENTS:

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CAUTION: The product make racks to appropriate disconstruction and complain the construction of the constr wash with water.

UNITED STATES



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CORPORATION

863 N. Orleans Street Chicago, Illinois 60610 Phone: (312) 943-1530

MICRODYNE

EPA REG. NO. 4855-4

FOR CONTROL OF BACTERIA AND FUNGI

FOR INDUSTRIAL USE ONLY

ACTIVE INGREDIENTS:

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USE: Refer to the appropriate product bulletin -"MICRODYN for Pulp & Paper Industry" and/or "MICRODYN for Industrial Waters." . If in cold weather MICRODYN® gels, returning it to room temperature will restore it to its original state.

CAUTION: This product may cause temporary discoloration and/or mild irritation of skin. In case of contact, wash with water.

THIS PRODUCT IS TOXIC TO FISH.
TREATED EFFLUENT SHOULD NOT BE
DISCHARGED WHERE IT WILL DRAIN
INTO LAKES, STREAMS, PONDS OR
PUBLIC WATER.



S. O. W. S. J. 1 11 11 11

LABORATORY

863 NORTH ORLEANS STREET, CHICAGO, ILL 60610

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FOR THE CONTROL OF BACTERIA AND FUNGI

TYPICAL PROPERTIES:

The silver and copper are in the colloidal form made by an industrial adaptation of U.S.P. No. 2,927,052.

The colloid suspension is stabilized for an indefinite period, if it is shielded from light in opaque containers, or in red or amber colored glass or plastic.

APPEARANCE:

The product is a reddish-brown liquid with a characteristic slight opalescense. It will not impart any color to the paper stock.

ODOR : Does not contribute any to paper products.

VOLATILITY OF ACTIVE INGREDIENTS: None

SPECIFICATIONS:

Density: 1.052 - 1.059 grams/ml. @ 25°C

Pounds/Gal.: 8.75

m1/1b.: 430

USE : In Pulp and Paper Mills.

MICRODYN is used in pulp and paper mills for the prevention of deposits caused by bacteria and fungi. The treatment is designed to keep the microbiological population at a low level so that agglomerations of these organisms will not interfere with production of paper or affect the quality of the finished product. The following points of addition are descriptive. The actual point or points of addition and the dosage within the ranges specified can be properly determined after a survey of the particular system by our representative in collaboration with the technical personnel of the mill.

uveran some Movidyn concentration

FOR PAPER MACHINES

1. General Machine Treatment

MICRODYN can be added at one or more places, such as the beater, hydropulper, before or after the refiners, storage chests, machine chest, head box, wire pit and fan pump.

The dosage range should be at the level of .25 to 5 parts per million by weight of MICRODYN to the weight of furnish. This should be added by pump preferably by continuous feed. As an alternative, slug feed can be used in which an equivalent amount is added at intervals, such that good control is maintained.

2. BROKE. In some mills, almost the whole treatment is based on the highly contaminated broke system. The amount to be added depends upon the amount of microbiological contamination.

For highly contaminated systems, the broke should be treated with 1 to 10 parts per million by weight of MICRODYN to the weight of the broke in the chest. To begin with, it would be best to start at the higher level of the suggested range and then reduce the amount of MICRODYN toward the lower end of the range as long as control is achieved.

HANDLING:

Equipment; pumps, lines and valves should be made of plastic, stainless steel, ceramic or glass.

For plastic; polyethylene, polypropylene, polyvinyl chloride, teflon and similar materials are acceptable.

Iron, copper, bronze, brass, tin, aluminum, lead, zinc and chrome must never be allowed to contact the concentrated MICRODYN, or the product will become unstable and less active.

In actual use, the dilute solutions of MICRODYN are effective in the presence of the above metals. It is only with the MICRODYN concentrate that precautions must be taken.

If TCRODYN is jelled or frozen, warm to room temperature $(70^{\circ} - 90^{\circ} \text{ F})$ and roll the drum before use.

PACKAGING: Shipped in: 50 lbs. in stainless steel, returnable pails.

450 lbs. in non-returnable plastic drums with steel overpack.

490 lbs. in returnable stainless steel drums.

SAFETY: MICRODYN can cause stains on skin and clothing. Therefore, care in handling the product should be observed.

MICRODYN may cause temporary discoloration and/or mild irritation of skin. In case of contact, wash with water.

This product is toxic to fish. Treated effluent should not be discharged where it will drain into lakes, streams, ponds or public water.



LABORATORY

563 NORTH CREEANS STREET, CHICAGO, ILL. 60610

PRODUCT <u>BULLETIN</u> - 4B

MICRODYN FOR INDUSTRIAL WATERS

FOR THE CONTROL OF BACTERIA AND FUNGI

TYPICAL PROPERTIES

The silver and copper are in the colloidal form made by an industrial adaptation of U.S.P. No. 2,927,052.

The colloid suspension is stabilized for an indefinite period, if it is shielded from light in opaque containers, or in red or amber colored glass or plastic bottles.

APPEARANCE:

The product is a reddish-brown liquid with a characteristic slight opalescense.

ODOR:

Does not contribute any to the water.

VOLATILITY OF ACTIVE INGREDIENTS: None

SPECIFICATIONS:

DENSITY: $1.052 - 1.059 \text{ grams/m1.} = 25^{\circ} \text{C}$

POUNDS/GAL.:

8.75

m1/1b.:

430

USE:

MICRODYN is used in industrial recirculating water cooling towers; and for ponds, reservoirs, raw water for process water in non-food applications, and for cooling heater exchangers. It is intended for the prevention of deposits caused by bacteria and fungi. The treatment is designed to keep the microbiological population at a low level so that agglomeration of these organisms do not affect the use for which the water is intended. The following points of addition are descriptive. The actual point or points of addition and the dosage within the ranges specified can be properly determined after a survey of the particular system by our representative in collaboration with the technical personnel of the water system under treatment.

The costs Movidyn convenience

1. PONDS, RESERVOIRS AND RAW WATER TREATMENT FOR NON-FOOD PROCESS WATER AND FOR COOLING HEAT EXCHANGERS.

Clean heavily contaminated systems before treatment with this product.

Add MICRODYN at the rate of 1-4 parts per million. At the lower level, this would require 36 ml (1.22 fl. oz.) and at the higher level, it would be 143 ml. (4.85 fl. oz.) per 10,000 gallons as a slug feed to start the treatment. For systems that are not highly contaminated, the treatment should be made at a location just after a pump where turbulence or high velocity flow takes place. The object is to generate good mixing and distribution of MICRODYN. This type of treatment should be repeated after one week. The makeup water should be treated at the rate of one part per million, 36 ml (1.22 fl. oz.) per 10,000 gallons.

If no pumping or circulating system is available, MICRODYN should be added at various locations, so that the best possible distribution is effected. There may be a slight local turbidity, but this does not affect the activity of the product.

2. INDUSTRIAL RECIRCULATING WATER COOLING TOWERS.

Clean heavily contaminated systems before treatment with this product.

MICRODYN should be added to the system as a slug feed at the rate of 1-4 parts per million. At the lower level, this would be 36 ml (1.22 fl. oz.), and at the higher level, 143 ml (4.85 fl. oz.) per 10,000 gallons to start up the treatment. This treatment should be repeated after one week. Makeup water should be treated at the rate of 36 ml (1.22 fl. oz.) per 10,000 gallons.

HANDLING: Equipment; pumps, lines and valves should be made of plastic or stainless steel, ceramic or glass.

For plastic; polythylene, polypropylene, polyvinyl chloride, tetlon and similar materials are acceptable.

Iron, copper, bronze, brass, tin, aluminum, lead, zinc and chrome must never be allowed to contact the concentrated MICRODYN, or the product will become unstable and less active.

In actual use, the dilute solutions of MICRODYN are effective in the presence of the above metals. It is only with the MICRODYN concentrate that precautions should be taken.

PACKAGING: Shipped

- 50 lbs. in stainless steel, returnable pails.
- 450 lbs. in non-returnable plastic drums with steel overpack.

490 lbs. in returnable stainless steel drums.

SAFETY:

MICRODYN can cause stains on skin and clothing. Therefore, care in handling the product should be observed.

MICRODYN may cause temporary discoloration and/or mild irritation of skin. In case of contact, wash with water.

This product is toxic to fish. Treated effluent should not be discharged where it will drain into lakes, streams, ponds or public water.