

CYANAMID

CYTOX[®] 2160 Industrial Biocide

DANGER! KEEP OUT OF REACH OF CHILDREN
CAUSES EYE BURNS
HARMFUL IF SWALLOWED

Do not get in eyes; wear goggles.
Avoid breathing dust.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

ACCEPTED

JAN 29 1971

ENTER THE FEDERAL REGISTER FOR
EVIDENCE AND RESISTANCE ACT
FOR THE U.S. DEPARTMENT OF
EDUCATION AND THE U.S. DEPT.
OF AGRICULTURE

FIRST AID: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. If swallowed, induce vomiting by sticking finger down throat or by giving strong soapy or salty water to drink. Repeat until vomit is clear. Call a physician. Never give anything by mouth to an unconscious person.

ACTIVE INGREDIENT:

Dodine (dodecylguanidine acetate)

95%
5%

INERT INGREDIENTS

USDA Reg. No. 1730-EE

A license is granted to any owner hereof to use the within contents in practicing the inventions of U.S. Patents 2,906,595 and 3,142,615 claiming methods of inhibiting the growth and development of certain micro-organisms, a prepaid royalty being included in the selling price of such contents to the original purchaser hereof. A nontransferable license under said patents may be obtained from American Cyanamid Company on current royalty terms whatever the source of the material used.

AVG. GR.

NET 200 Lb.

24627-16

LBL 5107 (R5)

DIRECTIONS FOR USE

This product is effective in controlling microorganisms such as bacteria, fungi and yeasts which cause deterioration of paper and paperboard products or articles molded from paper pulp. It may be added to the pulp stock in the beater or applied to the formed sheet by size press or rollcoater, or as a uniform spray. If the product is used as a beater additive, the degree of retention of the active ingredient will depend upon the nature of the other additives in the system. Technical service is available from the manufacturer of this product to assist customers in making the proper and most efficient use of the product.

FOOD PACKAGING. For paper and paperboard intended for use in contact with food, the rate of application of this product must be adjusted so that the amount of active ingredient (dodecylguanidine acetate) retained does not exceed 0.4 percent by weight of the paper or paperboard.

PAPER AND PAPERBOARD PRODUCTS FOR INDUSTRIAL OR AGRICULTURAL USE. When the paper or paperboard product is to be subjected to excessive leaching as by rainfall or contact with ground water, a concentration of up to 0.8 percent of active ingredient (dodecylguanidine acetate) by weight of the paper or paperboard may be required for effective microbial control.

DRUM DISPOSAL: Do not reuse empty drum. Destroy empty drum by burning. Stay out of smoke and fumes.

AMERICAN CYANAMID COMPANY

Industrial Chemicals Division

WAYNE, N. J.

12 OCT 1970

Paper and Paperboard Products
for Industrial or Agricultural Use

- When the paper or paperboard product is to be subjected to excessive leaching as by rainfall or contact with ground water, a concentration of up to 0.8 percent of active ingredient (dodecylguanidine acetate) by weight of the paper or paperboard may be required for effective microbial control.

Technical service is available through our local sales offices and representatives to assist customers in making the proper and most efficient use of this product.

TYPICAL
PROPERTIES

Active Ingredient	-	95% Dodecylguanidine acetate
Appearance	-	White, crystalline powder
Formula	-	$n-C_{12}H_{25}-NH-\overset{NH}{\underset{ }{C}}-NH_2 \cdot CH_3COO^-$
Melting Point °C	-	134-136
Molecular Weight	-	287.4
Solubility (25°C), Weight percent	-	Water, 630 ppm (0.063%) Lower alcohols, 7-23%. Between 25-100°C, the solubility of CYTOX 2160 is relatively constant.
Stability	-	The sulfate, carbonate and many other inorganic salts of dodecylguanidine are only very slightly soluble in water. It is recommended, therefore, that compatibility be tested prior to use. CYTOX 2160 is stable in solution under acid or slightly alkaline conditions at ordinary temperatures. Under alkaline conditions above pH 9.5, the unstable free base may be released and may decompose.
Wt./gal. (lbs.)	-	4.1 - 5.2

PROPERTIES
OF CYTOX 2160

This product is effective against a wide range of microorganisms which cause spoilage of paper and paperboard products. It is particularly effective against bacteria, fungi, and yeasts which cause paper and paperboard products to become discolored, stained, and weakened. It is also effective against the growth of mold and mildew on paper and paperboard products.

Uses and Precautions

This product is effective against a wide range of microorganisms which cause spoilage of paper and paperboard products. It is particularly effective against bacteria, fungi, and yeasts which cause paper and paperboard products to become discolored, stained, and weakened. It is also effective against the growth of mold and mildew on paper and paperboard products.

Directions

For use in paper and paperboard products, the product should be added to the pulp or paper stock at the time of manufacture. The rate of application should be determined by the type of microorganism to be controlled and the desired level of protection. For use in water treatment, the product should be added to the water at the time of treatment. The rate of application should be determined by the type of microorganism to be controlled and the desired level of protection.

ANTIMICROBIAL ACTIVITY

CYTOX 2160 is highly effective against a wide range of microorganisms. Listed below are some of the more common organisms often encountered in problem areas, together with the minimum concentration of CYTOX 2160 (parts per million) required for their inhibition.

TABLE 1 - MINIMUM INHIBITORY CONCENTRATION OF CYTOX 2160 (ppm)			
A			
1	Chlamydomonas reinhardtii	--	2
2	Chlorella	--	1.75
3	Marine blue-green algae	--	2.5
B			
1	Aerobacter aerogenes	--	2
2	Desulfovibrio desulfuricans (API strain "A")	--	2
3	Pseudomonas aeruginosa	--	7.5
C			
1	Aspergillus flavus	--	25
2	Penicillium citrinum	--	12.5
3	Trichoderma viride	--	125

PRECAUTIONS

Handling

- CYTOX 2160 is a cationic surface-active agent, and should be handled with all of the precautions usually associated with chemicals of the nature. Care should be taken when introducing CYTOX 2160 into streams containing fish. While CYTOX 2160 is not highly toxic, fish show signs of marked distress when in contact with this as with other surface-active materials.

"WARNING: This product can be injurious to health; read the entire label carefully and use only as directed".

Safety rules are included on each container to insure safe usage.

REFERENCES

- U.S. Patent No. 2,990,595
- Canadian Patent No. 865,498
- Canadian Patent No. 641,213
- U.S. Patent No. 3,142,615
- U.S. Patent No. 2,499,883
- U.S. Patent No. 3,264,172
- Section 121.2520 of the Food Additives Regulations, (21 CFR 121.2526)

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