

DOW
DOWICIDE G-ST
ANTIMICROBIAL Bead Form

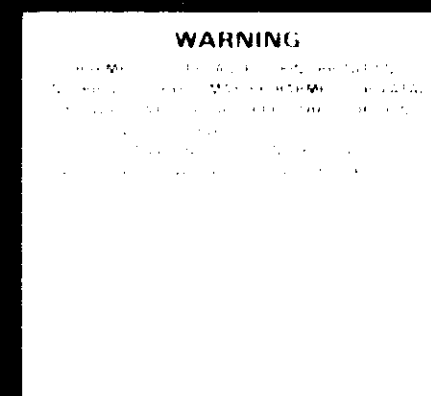
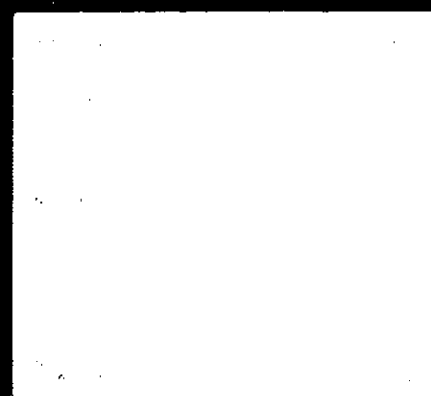


DOWICIDE G-ST
ANTIMICROBIAL

SURFACE-TREATED BEAD FORM
SODIUM PENTACHLOROPHENATE, TECHNICAL

*FOR CONTROL OF BACTERIA AND FUNGI
IN INDUSTRIAL APPLICATIONS*

FOR USE IN MANUFACTURING PROCESSES ONLY



WASH THOROUGHLY AFTER HANDLING
KEEP PACKAGE TIGHTLY CLOSED WHEN NOT IN USE

50 LB / 22.68 KG

THE DOW CHEMICAL COMPANY

AND SUBSIDIARIES
MIDLAND MICHIGAN 48840 USA ZURICH SWITZERLAND HONG KONG BCC
CORAL GABLES FLORIDA 33134 USA SARNIA ONTARIO CANADA

DOWICIDE G-ST
ANTIMICROBIAL Bead Form



LOT MM

PRINTED IN U.S.A. PMS BLACK
KRAFT

THIS ART IS 50% ACTUAL SIZE

SURFACE-TREATED BEAD FORM

SODIUM PENTACHLOROPHENATE, TECHNICAL

FOR CONTROL OF BACTERIA AND FUNGI IN INDUSTRIAL APPLICATIONS

FOR USE IN MANUFACTURING PROCESSES ONLY

Active Ingredients	90%
Sodium Pentachlorophenate	79%
Sodium Salts of Other Chlorophenols	11%
Inert Ingredients	10%

Calculated as sodium pentachlorophenate (molecular weight 289.31)

E.P.A. Registration No. 464-380

NOTICE: Seller warrants that the product conforms to the label description and is suitable for the purposes stated on the label when used in accordance with directions under normal conditions of use. But seller makes no warranty, express or implied, of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE, or any express or implied warranty of the use of this product for other than the stated uses or under conditions other than those specified on the label. Seller's responsibility is limited to the product as sold, under the label of any container.

NOTE: Refer to Directions in Technical Bulletin for DOWICIDE G ANTIMICROBIAL Before Handling or Using.

WARNING

**HARMFUL DUST • CAUSES SKIN IRRITATION
INJURIOUS TO EYES • MAY BE HARMFUL OR FATAL
IF SWALLOWED OR ABSORBED THROUGH SKIN**

Do Not Get in Eyes, on Skin or Clothing

Do Not Take Internally • Do Not Breathe Dust

Wear Chemical Workers' Goggles when Handling

FIRST AID: In case of eye contact, flush eyes immediately with plenty of water for at least 15 minutes and get medical attention. In case of skin contact, wash with soap and plenty of water. Wash contaminated clothing before re-use.

If swallowed, induce vomiting by sticking finger down the throat or by giving an emetic such as 2 tablespoonfuls of salt in a glass of warm water. Repeat until vomit is clear. Call a physician. Never give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN: This product is a metabolic stimulant. Causes hyperthermia. Treat symptomatically.

Do not reuse empty container. Dispose of it by burying it with waste, or by burning it. Stay away from smoke or fumes.

This product is toxic to fish and wildlife. Do not contaminate water by cleaning of equipment, or by disposal of wastes.

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KEEP PACKAGE TIGHTLY CLOSED WHEN NOT IN USE

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MIDLAND, MICHIGAN 48640, USA ZURICH, SWITZERLAND HONG KONG, BCC

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ANTIMICROBIAL AGENTS

DOWICIDE® G-ST Antimicrobial

General

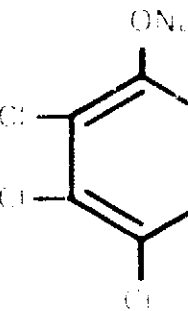
DOWICIDE G-ST Antimicrobial is Dow's design, available in bead form.

Adhesive manufacturers incorporate this antiprotein, and animal protein to protect them against storage and throughout their service life. In the leather industry, DOWICIDE G-ST plays an important role in the various pre-tanning and tanning stages, and in imparting mold resistance to stock during storage, and in imparting mold resistance to raw materials for paint are protected by the addition of DOWICIDE G-ST Antimicrobials, and sheetrock is finished by use of this same mixture. Finished products are protected from mildew, rot, and termites by the use of DOWICIDE G-ST in wood sizings, and printing colors. Textile sizing and finishing agents for carpet yarn are treated with DOWICIDE G-ST to prevent mold. In addition, DOWICIDE G-ST is used to control mold in drilling mud, to achieve optimum enhanced oil recovery, to inhibit bacterial growth in underground strata, to inhibit fungal growth in cooling water.

Physical Properties

(These are laboratory or literature data typical of product with specifications.)

Structure



Figures supplied in this report are based on the use of DOWICIDE G-ST in paper and textile applications. Actual results may vary. DOWICIDE G-ST is a registered trademark of The Dow Chemical Company. © 1981 Dow Chemical Company.

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DESIGNED PRODUCTS DEPARTMENT

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2 Physical Properties—continued

Formula	$C_6Cl_5O Na \cdot H_2O$	Methanol	25
Molecular Weight	306.3	Ethanol (95% E-30)	65
Density (lb./gal.)	2.0	Isopropanol	30
Specific Gravity (20/20)		Ethylene glycol	40
Beads	50-55	Polyglycol E-400	50
Granules	30-33	Propylene glycol	50
pH of saturated water solution (25 C)	9.0-11.5	Polyglycol P400	13
		Polyglycol P1200	30
Solubility (approx. g./100 g. solvent at 25 C)		Water	19
Acetone	35	50 C	30
Diacetone alcohol	45	75 C	33
DOWANOL 1M glycol ether	80	25 C	37
DOWANOL PM glycol ether	50	60 C	39
DOWANOL TPM glycol ether	60	70 C	

Trade name: Dow Antimicrobial.

Sales Specifications

Description	Light tan beads
Active ingredients	90
Sodium pentachlorophenate	79
Sodium salts of other chlorophenols	11
Inert ingredients	10

Water-soluble active ingredient may be used with glycol ethers and from that of hydroxy group.

Methods of analyses for these items may be obtained from The Dow Chemical Company, Designed Products Department, 2040 Dow Center, Midland, Michigan 48640.

Packages

DOWICIDE G-ST Antimicrobial Bead Form is sold in paper bags having a net weight of 50 lb and fiber drums with a net weight of 100 lb.

Status of DOWICIDE G-ST under federal laws

E.P.A. Registration No. 464-380 (ST-Bead form)

DOWICIDE G-ST Antimicrobial is listed in the E.P.A. Summary of Registered Pesticide Chemical Uses for dormant application on almonds, apricots, and prunes.

DOWICIDE G-ST Antimicrobial meets the requirements of a number of the Food Additive Regulations administered by the Food and Drug Administration. These are as follows:

CFR 121.2001	Prior sanction as a slime control agent in the manufacture of paper products
CFR 121.2505	Slimecides
CFR 121.2514	Resinous and Polymeric Coatings, Part (b) (3) (xxxii), can end cements
CFR 121.2519	Defoaming Agents Used in the Manufacture of Paper and Paperboard
CFR 121.2526	Adhesives
CFR 121.2526	Components of Paper and Paperboard in Contact with Aqueous and Fatty Foods
CFR 121.2534	Animal Glue
CFR 121.2537	Textiles and Textile Fibers
CFR 121.2548	Zinc Sulfate Dioxide Matrix Coatings

CFR 121.2550	Closures with Sealing Gaskets for Food Containers
CFR 121.2556	Preservatives for Wood
CFR 121.2557	Defoaming Agents Used in Coatings
CFR 121.2562	Rubber Articles Intended for Repeated Use
CFR 121.2571	Components of Paper and Paperboard in Contact with Fatty Foods
CFR 121.2576	Sodium Pentachlorophenate, Preservative for the Manufacture of Polyvinyl Chloride and in the Manufacture of Polyvinyl Chloride Emulsion

Antifungal and Antibacterial Efficacies

Test Organism	% Inhibition
Fungi	
<i>Trichoderma viride</i> , ATCC #8678	0.0025 — 0.005
<i>Chaetomium globosum</i> , ATCC #6205	0.0025 — 0.0005
<i>Ceratocystis ips</i> , ATCC #12860	0.0010 — 0.00025
<i>Lenzites trabea</i> , Madison 617	0.0001 — 0.00025
<i>Polyporus tulipiferae</i> , ATCC #11245	0.0001 — 0.00025
<i>Trichoderma</i> sp., Madison P-42	0.0005 — 0.001
<i>Rhizopus stolonifer</i> , ATCC #6227a	0.001 — 0.00025
<i>Aspergillus niger</i> , ATCC #6275	0.001 — 0.0025
<i>Rhizopus nigricans</i>	0.028 — 0.054
<i>Rhizoctonia solani</i>	0.0011 — 0.0022
<i>Hormiscus gelatinosum</i>	0.008 — 0.011
<i>Aspergillus</i> , No. 29	0.0011 — 0.0027
<i>Aspergillus flavus</i>	0.0022 — 0.0054
<i>Ceratostomella pilifera</i>	0.0022 — 0.0038
<i>Trichophyton interdigitale</i>	0.00054 — 0.0011
<i>Trichophyton rosaceum</i>	0.0027 — 0.0054
Bacteria	
<i>Bacillus cereus</i> var. <i>mycoides</i> , ATCC #11778	0.0005 — 0.001
<i>Staphylococcus aureus</i> , ATCC #6538	0.0001 — 0.00025
<i>Bacillus subtilis</i> , ATCC #8473	0.00025 — 0.0005
<i>Escherichia coli</i> , ATCC #11229	0.025 — 0.05
<i>Salmonella choleraesuis</i> , ATCC #10708	0.025 — 0.05
<i>Pseudomonas aeruginosa</i> , ATCC #15442	0.1 — 0.25
<i>Enterobacter aerogenes</i> , ATCC #13048	0.05 — 0.1

Product or Material Protected	Reason for Treatment	Suggested Concentration ¹	How to Apply
Adhesives	To prevent adhesive failure on starch, vegetable protein, and animal protein from deterioration during manufacture, storage, and service life.	0.25-1.0% by wt of DOWICIDE G-ST or a 50-50 mixture of DOWICIDE A and DOWICIDE G-ST antimicrobials.	Add as concentrated aqueous solution.
Construction Materials	To control mold growth on inert surfaces such as asbestos, fiberglass, tile, roofs, brick walls, and concrete blocks, and on products such as insulation, pipe sealing compound, and wallboard.	1.0-3% by wt in water; 0.5-3.0% by wt of product in which incorporated.	Rinse previously cleaned inert surface with aqueous solution of antimicrobial. Can be added by methods such as acid precipitation to insulation board and wallboard.
Leather	To prevent deterioration of hides and treating solutions during pre-tanning and tanning steps, and protect finished leather from molding.	0.06-10.0% by wt in water; 0.5-5.0% by wt of product in which incorporated.	Add as concentrated aqueous solution.
Paint	For storage preservation of decomposable raw material solutions or dispersions and storage preservation of protein base latex paints.	Maximum of 1.0% by wt of DOWICIDE G-ST or a 50-50 mixture of DOWICIDE A and DOWICIDE G-ST antimicrobials.	Add as concentrated aqueous solution.
Petroleum (Enhanced Oil Recovery)	To prevent bacterial growth in mining fluids, gypsum fluids, brackish fluids, and under ground strata.	0.25-0.5 lb of antimicrobial per barrel of fluid; 15-30 ppm in underground flooding water.	Add as concentrated aqueous solution.
Photographic Solutions	To control fungus and contamination.	0.01-0.2% by wt of solution.	Add as concentrated aqueous solution.

Product or Material Protected	Reason for Treatment	Suggested Concentration ¹	How to Apply
Pulp and Paper	To preserve processing materials and stored pulp, and to protect finished paper and fiberboard products against mildew, rot and termites.	0.1-1.0% by wt of paper product, pulp, or processing material.	Add as concentrated aqueous solution.
Textiles	To preserve processing materials and protect finished yarns and cloth against molding during storage.	0.1-0.75% by wt of material treated.	Add or apply as concentrated aqueous solution.
Water Treatment	To control algal, fungal and bacterial induced slimes in industrial recirculating water cooling systems.	20-80 ppm; 0.2-0.7 lb/1000 gal water.	Add as a concentrated aqueous solution to the water system after general clean-up. Add an additional 0.2-0.4 lb/1000 gal water weekly or as needed. Heavily contaminated systems must be cleaned mechanically, then treated with 0.4-0.7 lb/1000 gal water in the system. This dose may be repeated as needed to obtain control, then apply 0.2-0.4 lb/1000 gal water in the system weekly or as needed.

6 Hazards Due to Toxicity and Precautions For Safe Handling and Use

For more information on the hazards due to toxicity and precautions for safe handling and use of this product, see the Safety Data Sheet on this product. The following information is provided for your information. The information is based on laboratory studies of the chemical and its known effects on acute oral toxicity, irritation, and sensitization. The information is based on laboratory studies of the chemical and its known effects on acute oral toxicity, irritation, and sensitization. The information is based on laboratory studies of the chemical and its known effects on acute oral toxicity, irritation, and sensitization.

Toxicological Properties

DOWICIDE G-ST Antimicrobial is capable of producing serious eye irritation and corneal damage which may result in permanent impairment of vision. Prolonged skin contact is capable of producing marked irritation and skin damage. Repeated skin contact can result in dermatitis and systemic intoxication. An allergic skin response may develop in a very limited number of persons who experience skin exposure. The material is absorbed through the skin in amounts that can cause death. The dusts are irritant to the throat and nose. Ingestion of relatively small amounts can lead to illness.

Handling Precautions for Cleaning Up Spills or When Gross Contact is Likely

- Eyes**—Wash thoroughly with water. If necessary, use eye irrigation solution.
- Skin**—If skin contact occurs, wash immediately with soap and water. If irritation persists, seek medical attention.
- Inhalation**—If dusts or vapors are encountered, wear a respirator that is approved by the U.S. Bureau of Mines for toxic dusts.
- Spills**—Do not take any food or drink while working with this product. Wash hands thoroughly after handling.

First Aid Measures

- Eyes**—Flush eyes thoroughly with water for at least 15 minutes. If irritation persists, seek medical attention.
- Skin**—If skin contact occurs, wash immediately with soap and water. If irritation persists, seek medical attention.
- Inhalation**—If dusts or vapors are encountered, wear a respirator that is approved by the U.S. Bureau of Mines for toxic dusts.
- Spills**—Do not take any food or drink while working with this product. Wash hands thoroughly after handling.

DOWICIDE G-ST Antimicrobial — Toxicological Data

Test	Animal	Results
Acute Oral Lethality	Rat	LD ₅₀ 210 mg/kg body wt.
	Rabbit	LD ₅₀ 275 mg/kg body wt.
	Guinea Pig	LD ₅₀ 80 to 160 mg/kg body wt.
Chronic Oral	Rabbit	Fed by intubation 100 mg/kg as a 1% solution for 20 daily doses with no adverse effects.
	Rat	Fed by intubation 100 mg/kg as a solution for 20 days with only slight liver and kidney injury.
Eye Irritation	Rabbit	Undiluted material caused marked pain, moderate to severe conjunctival irritation, severe corneal damage and moderate iris. Only minor healing in seven days.
Skin Irritation	Rabbit	Extracts of a 10% suspension in both chloroform and acetone when applied to the ear 5 days a week for 4 weeks caused chloracne responses signifying a potential chloracne dermatitis in man.
	Rabbit	Capable of causing marked irritation, even a burn, on prolonged contact.
Skin Absorption	Humans	Tests on humans indicate that the material may produce hypersensitivity in an occasional person if exposures are prolonged and frequently repeated.
	Rabbits	LD ₅₀ in range of 100 to 300 mg/kg applied as a 20% solution.
Inhalation	Humans	Dust very irritating to nose and throat, not likely to be tolerated voluntarily.

If you require more information on the toxicity and precautions for safe handling and use of this product, see the Safety Data Sheet on this product. The information is based on laboratory studies of the chemical and its known effects on acute oral toxicity, irritation, and sensitization.

Customer Notice

Dow encourages its customers to review their applications of Dow products from the standpoint of human health and environmental quality. To help ensure that Dow products are not used in ways for which they are not intended or tested, Dow personnel are willing to assist customers in dealing with ecological and product safety considerations. Your Dow salesman can arrange the proper contacts.

NOTICE: This information is presented in good faith, but no warranty, express or implied, is given nor is freedom from any patent owned by The Dow Chemical Company or by others to be inferred. Inasmuch as any assistance furnished by Dow with reference to the safe use and disposal of its products is provided without charge, Dow assumes no obligation or liability therefor.

