



464-70

ACCEPTED

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UNION PACIFIC RAILROAD IN PCTICIDE
FOR ECONOMIC INSECTICIDE ACT
REGISTERED UNDER NO. 1

DOWICIDE

ANTIMICROBIAL

For the control of fungi and bacteria, including Pseudomonads, in industrial applications
SEE USE IN THE MANUFACTURE OF DISINFECTANT PREPARATIONS

For information on
DOWICIDE
contact your local
DOW CHEMICAL COMPANY

WARNING:
IRRITANT. AVOID CONTACT WITH EYES AND SKIN.
WASH IMMEDIATELY WITH WATER.

Do not inhale dust or vapors. Avoid contact with skin.
Wash thoroughly after handling.
If contact with eyes, wash immediately with clean water.
If contact with skin, wash immediately with soap and water.

WASH THOROUGHLY AFTER HANDLING

As required, empty container. Dispose of by pouring
or flushing into sanitary sewerage or burning.
Stay away from smoke or fumes.

NOTICE: Seller warrants that the product conforms to the
label description and is responsible for the injury or damage
caused by the use of the product when used in accordance with the
directions on the label. Seller does not warrant the fitness of the
product for any other purpose, and the use of the product for any
other purpose is at the user's risk. Seller's liability is limited to the
amount of the purchase price of the product.

NOTE: Refer to Directions in Technical Bulletin
DOWICIDE Antimicrobial for Handling and Using

FOR USE IN MANUFACTURING PROCESSES ONLY

KEEP PACKAGE TIGHTLY CLOSED WHEN NOT IN USE

NET CONTENTS: 100 LB/45.36 KG

THE DOW CHEMICAL COMPANY

2001 W. MICHIGAN AVE., ANN ARBOR, MICHIGAN 48106
DOW CHEMICAL COMPANY, MIDLAND, TEXAS 79701
DOW CHEMICAL COMPANY, P.O. BOX 1700, FREEPORT, TEXAS 77541

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2 Physical Properties — continued

Formula	$C_6H_4(C_6H_5)OH$	DOWANOL PM glycol ether	420
Molecular Weight	170.2	DOWANOL TPM glycol ether	300
Freezing point, C	57	Methanol	870
Boiling point, C	286	Ethanol (95%, F2B)	580
Flash point, F, C.O.C	255	Ethylene glycol	140
Fire point, F, C.O.C	300	Isopropanol	460
Specific Gravity, 25-25 C	1.2	Polyglycol E400	180
Bulk density, lb/ft ³	35-41	Polyglycol P400	180
Vapor pressure, mm Hg		Polyglycol P1200	140
140 C	7	Propylene glycol	280
240 C	300	Water	
Solubility, approx g/100 g solvent at 25 C		25 C	0.08
DOWANOL* EM glycol ether	470	60 C	0.16

*Trademark of The Dow Chemical Company

Sales Specifications

Description	White or light buff to pink free-flowing flakes
Active ingredient, o-phenylphenol	98%
Inert ingredients	2%

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 1 Antimicrobial is sold in fiber drums having a net weight of 100 lb.

E.P.A. Registration No. 464-70.

DOWICIDE 1 Antimicrobial is listed in the "E.P.A. Summary of Registered Agricultural Pesticide Chemical Uses" for post-harvest application to various crops and as a preservative for wood containers used for fruits and vegetables.

DOWICIDE 1 Antimicrobial when used according to good manufacturing practices, meets the requirements of the F.D.A. for use in defoaming agents (CFR 121.2519), adhesives (CFR 121.2520), and rubber articles (CFR 121.2562). Tolerances have been established for post-harvest fungicide application (CFR 120.129).

Antifungal and Antibacterial Efficacies

Test Organism	% for Inhibition
Fungi	
<i>Rhizopus nigricans</i>	0.015 — 0.02
<i>Rhizoctonia solani</i>	0.001 — 0.002
<i>Chaetomium globosum</i>	0.0025 — 0.005
<i>Hormiscus gelatinosum</i>	0.005 — 0.01
<i>Aspergillus</i> No. 29	0.0025 — 0.005
<i>Polyporus ulipife,ae</i> (F.F.L. No. 517)	0.005 — 0.01
<i>Aspergillus flavus</i>	0.005 — 0.01

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<i>Lenzites trabea</i>	0.0025 — 0.005
<i>Ceratostomella pilifera</i>	0.005 — 0.01
<i>Trichophyton interdigitale</i>	0.002 — 0.0035
<i>Trichophyton rosaceum</i>	0.0035 — 0.005
Phenol Coefficients (A.O.A.C. Method, Tested at pH 8 to 11)	
Bacteria	20 C
<i>Salmonella typhosa</i>	24
<i>Staphylococcus aureus</i>	20
<i>Pseudomonas aeruginosa</i>	14

Applications

Industry	Reason for Treatment	Suggested Concentration ¹	How to Apply
Agriculture	For post-harvest preservation of fruits and vegetables.	0.1-0.3% by weight in aqueous solution; 0.5-2.0% by wt in wax emulsion.	For aqueous solutions, convert DOWICIDE 1 Antimicrobial to the sodium salt with caustic and dilute to solution of desired strength. For wax emulsions, dissolve DOWICIDE 1 in solvent wax.
Automotive	To preserve felt gaskets.	1% by wt of organic solvent.	Saturate felt with solution of DOWICIDE 1 in a volatile solvent like alcohol or Stoddard solvent.
Ceramic	To prevent decomposition of ceramic glazes and clay slips.	0.05-0.1% by wt of glaze or slip formulation.	Add to ingredients of formulation as they are charged into ball mill.
Metalworking Fluid	To prevent decomposition of fluids prepared from ready-formulated water-emulsifiable oil concentrates.	0.1-0.15% by wt of diluted concentrate.	Add to water emulsifiable oil concentrate during formulating process.

¹ Refers to concentrations of DOWICIDE 1, except as noted.

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Applications

Industry	Reason for Treatment	Suggested Concentration ¹	How to Apply
Agriculture	For post-harvest preservation of fruits and vegetables.	0.1-0.3% by weight in aqueous solution; 0.5-2.0% by wt in wax emulsion.	For aqueous solutions, convert DOWICIDE 1 Antimicrobial to the sodium salt with caustic and dilute to solution of desired strength. For wax emulsions, dissolve DOWICIDE 1 in solvent wax.
Automotive	To preserve felt gaskets.	1% by wt of organic solvent.	Saturate felt with solution of DOWICIDE 1 in a volatile solvent like alcohol or Stoddard solvent.
Ceramic	To prevent decomposition of ceramic glazes and clay slips.	0.05-0.1% by wt of glaze or slip formulation.	Add to ingredients of formulation as they are charged into ball mill.
Metalworking Fluid	To prevent decomposition of fluids prepared from ready-formulated water-emulsifiable oil concentrates.	0.1-0.15% by wt of diluted concentrate.	Add to water emulsifiable oil concentrate during formulation process.

¹ Refers to concentrations of DOWICIDE 1, except as noted.

Applications — Continued

Industry	Reason for Treatment	Suggested Concentration ¹	How to Apply
Disinfectant	To make formulations effective against Pseudomonas-type organisms.	Varies depending upon the use-dilution of the product.	Add to disinfectant concentrate during formulating process.
Leather	To impart temporary mold resistance to shoe liners, hat bands, gloves, etc.	1.5% by wt of leather.	Apply from petroleum and vegetable oil formulation.
Paint	For shelf preservation of protein-based latex paints.	0.50% minimum by weight of a 50-50 mixture of DOWICIDE 1 and DOWICIDE EC-7.	Solubilize in an aqueous caustic solution, and add during the manufacturing process.
Polish Formulating	For shelf preservation of automobile polishes and polishing compounds.	0.25% by wt of polish; 0.25-0.50% by wt of polishing compound.	Add to polish or compound during formulating process.

¹ Refers to concentrations of DOWICIDE 1, except as noted.

Hazards Due to Toxicity and Precautions for Safe Handling and Use

The following statements on health hazards summarize our laboratory and application data. The precautions for safe handling and use are necessarily general in nature, since the circumstances associated with each customer's use of the material are unknown and beyond our control. Suggestions with regard to the hazards likely to be encountered in specific operations will be made upon request whenever possible. Inquiries about such specific operations and uses may be addressed to The Dow Chemical Company. Assistance in evaluating particular plant conditions may be obtained from certain consulting laboratories and from state Departments of Health or of Labor, many of which have an Industrial Hygiene Service.

Toxicological Properties

DOWICIDE 1 Antimicrobial is an eye irritant. The product is capable of causing moderate to severe conjunctival redness, moderate to severe swelling, slight to moderate iritis and slight to moderate corneal injury. It is neither a primary skin irritant nor a skin sensitizer. It is not absorbed through the skin in toxic amounts. The dusts are irritating to the upper respiratory tract.

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

Eyes - Wear chemical workers' goggles or their equivalent.

Skin - Avoid prolonged skin contact. Grossly contaminated clothing should be removed before re-use.

Dust - Excessive exposure should be avoided.

First Aid Measures

Eye Contact - Contaminated eyes should be washed promptly and thoroughly with copious amounts of flowing water for at least 15 minutes. Medical attention should then be obtained.

Skin Contact - Contaminated skin should be washed with soap and water. Any irritation which develops should receive medical attention.

Inhalation - Anyone experiencing any noticeable ill effects from breathing the dust of this material should be removed to fresh air.

DOWICIDE 1 Antimicrobial — Toxicological Data

Test	Animal	Results
Acute oral Lethality	Rat	LD ₅₀ > 1000 mg / kg body wt
	Guinea Pig	LD ₅₀ 3500 mg / kg body wt
Chronic oral	Rabbits	Doses up to 1000 mg / kg were administered daily, 5 days a week for 4 weeks with no apparent ill effects.
	Rat	Doses up to 200 mg / kg were administered daily, 5 days / week for 6 months with no ill effects. 500 mg / kg produced only minimal changes of questionable significance.
	Rat	Rats were maintained on diets containing 0.1, 0.3 and 1.0% of DOWICIDE 1 for 3 months with no ill effects. Minimal effects were produced at a 2.0% level.
	Rat	Rats were maintained on diets containing 0.02 and 0.2% of DOWICIDE 1 for 2 years with no ill effects. 2.0% level inhibited growth slightly and showed slight changes in the kidneys.
	Dogs	Dogs were maintained on diets containing 0.02, 0.2 and 0.5g / kg / day for 6 months with no ill effects.
Eye Irritation	Rabbit	Diffuse-crimson or beefy red conjunctival redness, moderate to severe conjunctival chemosis causing the eye lids to be half or more than half closed, moderate circumcorneal injection of the iris, and slight to moderate corneal injury.
Skin Irritation	Rabbit	The concentrated material was nonirritating. Solutions of the material, depending upon vehicle and concentration, caused mild irritation.
	Human	No skin irritation produced by a 5% sesame oil solution of the material.

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6 Toxicological Data

Test	Animal	Results
Skin Sensitization		
Skin Absorption		

Customer Notice

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.