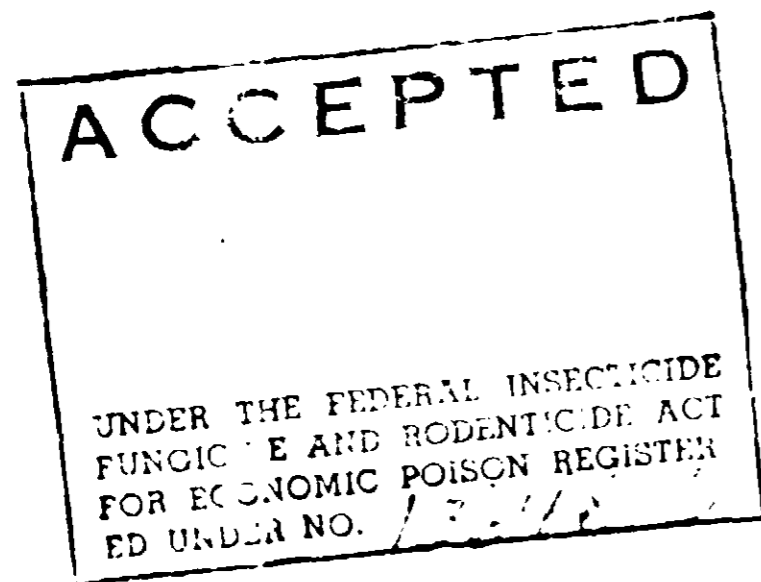


Glidco Pine Oil-150[®]



For manufacturing germicides

EPA Reg. No. 13648-3

Active Ingredient 100% Pine Oil

WARNING: Keep out of reach of children. Harmful if swallowed. May cause eye damage. Causes skin irritation. Do not get in eyes or on skin. Avoid contamination of food.

FIRST AID: In case of contact with eyes or skin, wash immediately with water. For eyes, get medical attention. If swallowed, do not induce vomiting. Vomiting may be harmful. Consult physician immediately.

CLEAN TANKCAR THOROUGHLY BEFORE REUSE.

See Technical Service Report TSR-73-3 for use information.



GLIDDEN-DURKEE

DIVISION OF SCM CORPORATION
JACKSONVILLE, FLORIDA



Glidco Pine Oil-150

For manufacturing germicides

Net wt. 415 lbs.

EPA Reg. No. 13648-3

Active Ingredient 100% Pine Oil

Rinse empty drum thoroughly clean with water before discarding
or returning to drum reconditioner.



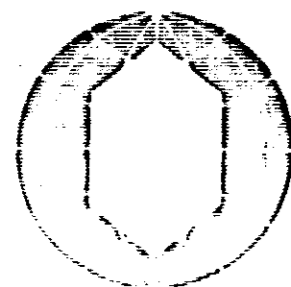
GLIDDEN-DURKEE

DIVISION OF SCM CORPORATION
JACKSONVILLE, FLORIDA

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Our nature is to improve on nature

NAME CHANGE ONLY
GLIDCO PINE OIL-150 IS
THE NEW NAME FOR
GLIDCO PINE OIL 150-IMPROVED
THE PRODUCT IS UNCHANGED.

Product Data Sheet

No. 178
Cancel No. 99
Effective 1/15/72

GLIDCO® PINE OIL 150 IMPROVED

SPECIFICATIONS

Specific Gravity (15.5°/15.5° C.)	.930 Minimum
Terpene Alcohols by VPC	83% Minimum
Moisture	5% Maximum
Distillation	
5%	190°C. Minimum
95%	229°C. Maximum

Meets Federal Specification LLL - P.400A - Type 1.

TYPICAL PROPERTIES

Color, APHA	10
Odor	Pinaceous
Terpene Alcohols (by ASTM D-802-57)*	89.0%
Refractive Index, 20°C.	1.479-1.489
Acid Number	< 1
Flash Point (C.O.C.)	175°F.
Kauri Butanol Value	> 500
Polymerization Residue	1.5%

* This test also measures cineoles which are present at the level of a few per cent.

DESCRIPTION

Largely Alpha Terpineol plus other
Terpene Alcohols and Terpene Hydrocarbons.

USES

Disinfectants, Cleaners, Ore Flotation.

SHIPPING INFORMATION

Weight per gallon, 25° C.: 7.76 Pounds.
Tank Cars: Unlined.
Drums: New 55 Gallon Lined Black Iron.
Billing: Tank Cars - Gravimetric
Drums - 415 Pounds Net.
Shipping Point: Jacksonville, Florida
Stocks in Principal Cities.



Registered Trademark of Glidden-Durkee, Division of SCM Corporation
GLIDDEN ORGANICS INTERNATIONAL

ORGANIC CHEMICALS GROUP, GLIDDEN-DURKEE DIVISION, SCM CORPORATION, P.O. BOX 289 JACKSONVILLE, FLORIDA 32201 • TELEPHONE (904) 764-1211 • TELEX 056 293 OFFICES
210 SUMMIT AVE., MONTEALE, N.J. • TELEPHONE (201) 891-3040 • N.V. SCM INTERNATIONAL S.A., CHAUSSEE DE CHARLEROI, 27, B-1060 BRUSSELS (BELGIUM) • TELEX 844227 H



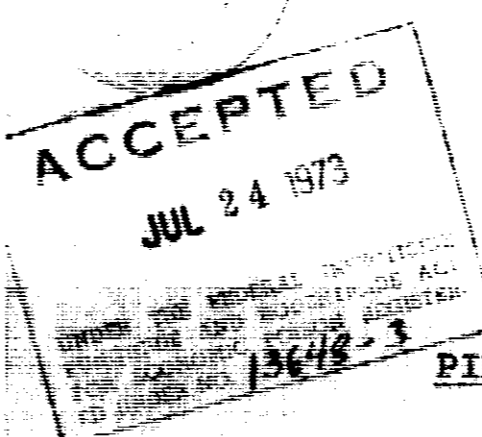
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Technical Service Report

TSR 73-3

GLIDCO® PINE OIL 150
IN

PINE OIL SOAPS, CLEANERS, AND DISINFECTANTS



INTRODUCTION

For almost 50 years the bactericidal properties of pine oil have been recognized, and its emulsions advocated for use in disinfectants. Because pine oil emulsions combine, with their germicidal properties, excellent cleansing and penetrating powers, good solvency for oils, fats and greases, and a pleasing odor, their utility has been extended over the years to cover the range of products from pine scented cleaners to disinfectants.

This bulletin describes representative scrub soap and cleaner formulations, as well as typical disinfectants from the three categories generally accepted as standard by the industry: pine-odor disinfectants, with less than 15% pine oil; pine-type disinfectants, containing 20-60% pine oil; and pine oil disinfectants having greater than 60% pine oil, less than 10% water*, and no mineral oil or kerosene.

PINE OIL PROPERTIES

The most important properties of pine oil for disinfectant use are its germicidal value, its ability to form emulsions and to reduce surface tension. Of the various alcohols present in commercial grades of pine oil, alpha-terpineol surpasses all in these three qualities. The most desirable pine oil for disinfectants, therefore, possesses a high percentage alpha-terpineol; GLIDCO® PINE OIL 150 on which the formulations in Tables I, II, III are based, meets

*Complete specifications for pine oil disinfectants appears in Commercial Standards CS69-38 set forth by the U. S. Department of Commerce through the National Bureau of Standards, amended Apr. 8, 1955.

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Federal Specification LLL-P-400a, Type 1. Manufacturing specifications for GLIDCO® PINE OIL 150 are given in Table IV.

THE EMULSIFYING AGENT

Although it is universally accepted that the bactericidal properties of disinfectants depend primarily on the quality and content of pine oil, the type and concentration of emulsifying agent also has a direct effect on the germicidal activity of the emulsion and, of course, on its cleaning power.

Historically, rosin soaps were the first to gain acceptance; sulfonated oils and the fatty acid soaps are also suitable, and the selection of an emulsifier system, for any particular application, involves balancing performance characteristics with ease of handling and cost.

Since our laboratories have obtained data which indicate mixtures of rosin and fatty acid soaps are advantageous, the formulations described herein are based on Glidden's SYLVATAL® 40 - Distilled Tall Oil.

TABLE I

SCRUB SOAPS AND CLEANERS

FORMULATION NUMBER:	130	129	146	147
GLIDCO PINE OIL 150	4.0	13.3	20.0	20.0
SYLVATAL 40	12.5	11.3	18.7	18.7
NaOH (50%)	3.4	4.4(1)	5.2	5.2
Water	68.3	68.0	51.1	50.1
Isopropanol	7.8	-	-	3.5
Trisodium Phosphate 12 H ₂ O	4.0	3.0	5.0	-
Sodium Nitrilotriacetate (SNTA)	-	-	-	2.5
% Active Ingredients	29.9	29.1	46.1	47.1

(1) 50% KOH

DESCRIPTION

Formulation No. 130 - An excellent pine-odor liquid household cleaner with good deodorizing and cleaning properties. If higher viscosity is desired, some isopropanol can be replaced by water.

Formulation No. 129 - Higher than No. 130 in pine oil content, with improved solvent action to grease and stains.

Formulation No. 146 - Higher in pine oil content than pine-odor disinfectants, and fortified with trisodium phosphate for heavy-duty cleaning power. A good janitorial and industrial cleaner.

Formulation No. 147 - Similar to No. 146 except containing SNTA for improved hard water service.

SYLVATAL 40 contains both rosin and fatty acids in high concentration, is convenient to use, requiring no heat for saponification, is low in unsaponifiables, and, as compared to straight fatty acids, more economical.

Where desired, SYLVATAL 40DD, a more highly refined tall oil lower in color, can be substituted directly for SYLVATAL 40 in these formulations. Also, either of Glidden's SYLFAT® Fatty Acids, which are unsurpassed in quality, may be used with minor changes in formulation to account for variations in acid value. When SYLVATAL 40 is replaced by an equal percentage of SYLFAT 96 or SYLFAT 95, increase the percentage of KOH (50%) in the formulation by 5%, and reduce water concentration an equal amount to assure complete saponification. Specifications for Glidden's SYLVATAL Distilled Tall Oils and SYLFAT Fatty Acids are given in Table V.

DISINFECTANT PROPERTIES

The "A.O.A.C. Phenol Coefficient Method," which appears in the "Official Methods of Analysis" (1955), has been used to measure the effectiveness of the disinfectant formulations. The values reported herein, which were determined by an independent testing laboratory using SALMONELLA TYPHOSA organisms, are typical, but at the conservative end of about a 10-15% reproducibility range.

Various germicidal fortifiers may be employed, particularly in pine-odor and pine-type disinfectants, to increase the phenol coefficient and, in some cases, activity against gram-positive organisms which otherwise are unaffected by pine oil disinfectants. Dowicidol 32, 4 and 6-Chloro-2-Phenylphenol, is a typical example; the effect of its addition to Formulation Number 340 is shown in Table II.

PREPARATION PROCEDURE

(1) Combine the GLIDCO® PINE OIL 150 and SYLVATAL® 40.

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- (2) Add NaOH (or KOH) to this solution with stirring.
- (3) Dissolve trisodium phosphate or SNTA in water, adding if necessary, and add to the above.
- (4) Add isopropanol, if specified, to improve clarity and reduce viscosity.

TABLE II

PINE-TYPE DISINFECTANTS

FORMULATION NUMBER:	340	364	370	380
GLIDCO® PINE OIL 150	27.6	50.0	50.0	60.0
SYLVATAL® 40	7.35	12.5	17.75	17.5
KOH (50%)	2.85	4.8	6.85	6.7
Water	58.5	32.7	25.4	15.8
Isopropanol	3.9	-	-	-
% Active Ingredients	39.8	64.1	70.0	79.7
Phenol Coefficient	-	5.0	5.0	4.4
Phenol Coefficient with "Dowicide" 32(%)	6.5(2%)	-	-	-

DESCRIPTION

Formulation 340 - A low-cost pine-type disinfectant with an excellent balance of properties. Fortified with 2% chloro-o-phenylphenol, the phenol coefficient compares favorably with the most active pine oil disinfectants.

Formulation 364 - An excellent disinfectant, low in cost, and easy to prepare, which has excellent germicidal properties, even without fortifiers.

Formulation 370 - Similar to No. 364, with increased soap content, and therefore better cleansing properties.

Formulation 380 - Borderline between a pine-type disinfectant and a pine oil disinfectant. Lower in cost than the pine oil disinfectants shown in Table III, but with reduced germicidal activity.

PREPARATION PROCEDURE

- (1) Combine GLIDCO PINE OIL 150 and SYLVATAL 40, and add chloro-o-phenylphenol, if specified.
- (2) Add KOH slowly, with stirring, and mix until clear.
- (3) Add water slowly with stirring.
- (4) In formulation 340, add 1/2 the isopropanol if and when the mixture becomes white and viscous.

- (5) Complete addition of water and isopropanol and stir until clear.

TABLE III

PINE OIL DISINFECTANTS

FORMULATION NUMBER:	492	494	495a
GLIDCO® PINE OIL 150	80.0	80.0	68.0
SYLVATAL® 40	9.0	12.5	20.0
KOH (50%)	3.4	4.8	7.7
Water	7.6	2.7	4.3
% Active Ingredients	91.9	94.1	94.5
Phenol Coefficient	6.0	6.0	6.0

DESCRIPTION

Formulation 492 - An 80% pine oil disinfectant designed to meet Federal Specification 0-D-001276(GSA-FSS).

Formulation 492 - An 80% pine oil disinfectant, with high soap content, which has excellent cleaning properties and a high phenol coefficient. An excellent heavy duty typhoid sick room cleaner.

Formulation 495a - Liquid pine oil disinfectant, meeting all U. S. Department of Commerce standards (CS69-38) which has excellent balance of germicidal and cleansing properties.

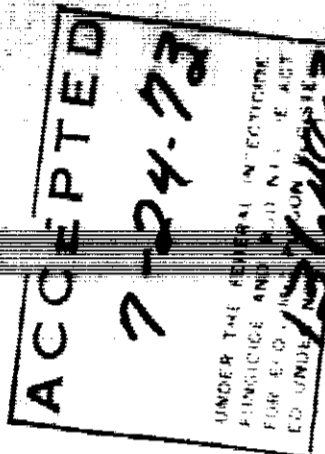
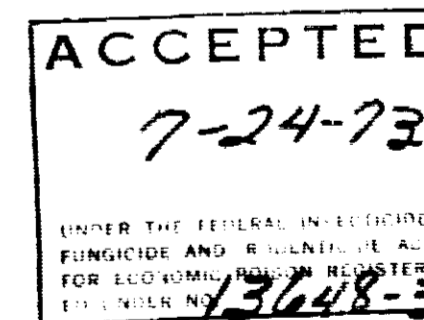
PREPARATION PROCEDURE

Formulation Nos. 492, 494, and 495a are prepared similarly to pine-odor and pine-type disinfectant formulations.

TABLE IV
Specifications For

GLIDCO® PINE OIL 150

Specific Gravity (15.5°/15.5°C.) Min	0.930
Terpene Alcohols, % Min.	85
Moisture, % Max.	0.5



-6-
TABLE V
Specifications for

GLIDDEN SYLVATAL® DISTILLED TALL OILS AND SYLFAT® TALL OIL FATTY ACIDS

	SYLVATAL®40	SYLVATAL®40DD	SYLFAT®96	SYLFAT®95
Acid No., Min.	186	186	196	193
Unsaponifiabiles, % Maximum	2.0	2.0	1.3	1.9
Free Rosin Acids, % by titration, Maximum	32.0	32.0	1.3	2.7
Color, Gardner, Maximum	10	4+	4 Max.	3

Additional technical data on Glidden's SYLFAT® Tall Oil Fatty Acids, SYLVATAL® Distilled Tall Oils and GLIDCO® PINE OIL 150 are available on request.

PRECAUTIONARY STATEMENT

WARNING: Keep out of reach of children. Harmful if swallowed. May cause eye damage. Causes skin irritation. Do not get in eyes or on skin. Avoid contamination of food.

FIRST AID: In case of contact with eyes or skin, wash immediately with water. For eyes, get medical attention. If swallowed - **DO NOT INDUCE VOMITING.** Vomiting may be harmful. CONSULT PHYSICIAN IMMEDIATELY.

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