

5-27-57  
2829-60

# SCIENTIFIC CHEMICALS i n c.

## FUNGICIDES . . . BACTERICIDES SPECIALTY CHEMICALS

SOCCI # 8618

Active ingredient:	
2,2'-methylenebis (3,4,6-trichlorophenol)	11%
Orthophenylphenol	10%
Inert ingredients:	80%

DIRECTIONS FOR USE

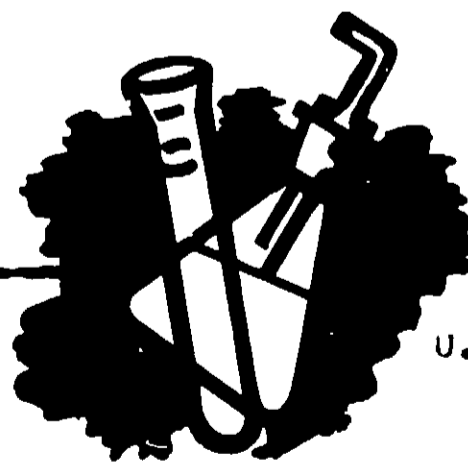
PLEASE REFER TO TECHNICAL DATA SHEET

CAUTION: KEEP OUT OF REACH OF CHILDREN. Do not allow in direct contact with skin. If splashed on skin wash thoroughly with soap and water. Do not allow material to be splashed in eyes. If splashed in eyes wash with copious amounts of water and secure immediate medical attention. Harmful if swallowed.

Contents

40 lbs. net

Reg. U.S.  
Reg. U.S. Pat. Off.

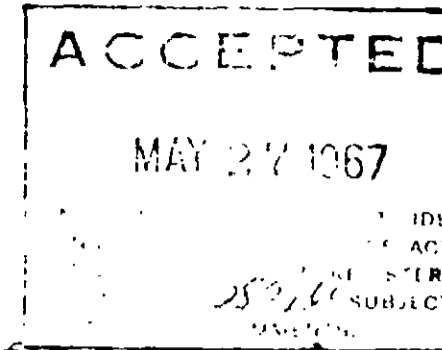


U.S. Pat. Registration  
No. 2829-60

1637 SOUTH KILBOURN AVE.  
CHICAGO 23, ILLINOIS

SOCCI #6618

A Combination Bactericide and Fungicide

INTRODUCTION

SOCCI #6618 was developed to meet the growing demand for a compound effective in controlling a wide range of both bacterial and fungal organisms. Before this compound was put on the market tests were made on literally thousands of biocides - materials known to be more or less effective in the control of micro-organisms. In the screening and ultimate selection of these biocides the following criteria were considered most important:

- 1.) The biocides must be safe. They must have a long history of safe use over and above toxicology tests performed in the laboratory. There is no substitute for actual use over years of time.
- 2.) They must be manufactured by responsible, ethical manufacturers of established reputation.
- 3.) They must have been evaluated and approved by one or more government agencies.

It was recognized quite early that no single biocide would prove satisfactory against a wide range of organisms tested under varying conditions. Several of the most effective biocides were therefore combined in various ratios, and formulated in such a way so as to increase the total spectrum of organisms which could be controlled.

Eventually two biocides were selected for their outstanding performance - hexachlorocyclopentadiene and ortho hydroxybiphenyl. Each of these materials has a long history of safe and effective use and, in the special SOCCI #6618 process, appears to combine synergistically with the other to control a wider range of organisms than could be attained by either of them alone. The following tests illustrate its extreme potency against both bacterial and fungal organisms.

ANTI-BACTERIAL EFFECTIVITY

Anti-bacterial tests were made by a highly reputed laboratory against seven representative organisms, selected because of their common association with the human body. At the use level of 2.5% SOCCI #6618 complete control was achieved. In most cases a total kill was obtained in less than 15 seconds after exposure of the organism.

In order to demonstrate the potency of SOCCI #6618, tests were conducted to show how far SOCCI #6618 could be diluted with water and still be effective. The column labelled "Competitive Product A" indicates the comparative activity of a sanitizing compound now in commercial use containing quaternary ammonium salts.

TEST ORGANISMS

HIGHEST INHIBITING DILUTION

	<u>SOCCI #6618</u>	<u>Competitive Product A</u>
Salmonella typhosa	1:20,000	1:1,000
Proteus mirabilis	1:12,000	Growth at 1:1,000
Candida albicans	1:200,000	1:20,000
Micrococcus pyogenes var. aureus	1:200,000	1:12,000
Bacterium ammoniagenes	1:200,000	1:20,000
Lactobacillus acidophilus	1:200,000	1:1,000
Corynebacterium pyogenes	1:400,000	1:20,000

5. 27-67  
2 22-67

From the above table it will be seen that SOCCI #6618 is from 12 + 200 times more potent than the competitive sanitizing material.

ANTI-FUNGAL EFFECTIVITY

Fungus tests also were conducted in fabric which had been treated with 1.5% SOCCI #6618. Complete control of Trichophyton interdigitale, a fungus organism commonly associated with "athletes-foot", was observed even after 14 days incubation under warm, humid conditions. The control of other fungus organisms, although claimed by many sanitizing treatments, is effectively achieved in SOCCI #6618 through the proven fungicidal action of ortho hydroxybiphenyl. This material is extremely effective in the control of fungi and is currently specified for the protection of footwear by the United States Air Force.

SAFETY OF USE

Although both biocides used in SOCCI #6618 have been thoroughly tested (see subsequent paragraphs on hexachlorophene and ortho hydroxybiphenyl), SOCCI #6618 was submitted to a reputable testing laboratory for toxicological study. Utilizing the repeated insult patch test on a carefully observed group of individuals, it was found that fabric treated with several times normal use concentration of SOCCI #6618 was not significantly more irritating or sensitizing than the control fabric itself. Copies of this test may be obtained on request.

USE OF SOCCI #6618

SOCCI #6618 is a concentrated white liquid, easily diluted with water to treating strength. The level of SOCCI #6618 to be incorporated into textiles depends on the degree of activity desired and the nature of the end-use item. In general the levels range from a maximum of 6.0% (1.2% active biocide) to a minimum of 2.5% (0.5% active biocide).

Where launder resistance is desired it is necessary to add a resin binder to the treatment. It has been found that launder resistance of every biocide is largely dependent on the binder employed. Certain

- 3 -

polyvinyl acetates and co-polymers thereof, as well as latex and acrylic binders, have been found effective in improving launder resistance, some being more resistant to laundering than others. Both thermoplastic and thermosetting resins have been successfully employed, among them American Cyanamid's AR-134 in the former category and M-3 in the latter. A typical formula with binder is as follows:

5 lbs. SOCCI #6618  
5 lbs. resin emulsion (or other binder)  
90 lbs. water

This will treat 200 lbs. of fabric.

It is impossible to predict which binders will be effective in increasing the durability of SOCCI #6618 without thorough testing. It is not uncommon, for example, to find resins which, while extremely durable to laundering, still sharply decrease the effectivity of the biocidal treatment by sealing the surface of the fabric.

#### COLORFASTNESS

After treatment with SOCCI #6618 and drying, it is necessary to scour the fabric to insure colorfastness. Failure to do this may result in subsequent discoloration after excessive exposure to heat or ultraviolet rays.

#### HEXACHLOROPHENE

This material has found very wide use as a bactericide. Although probably best known for its use in toilet soaps, hexachlorophene is so effective that it is used in surgical scrub-up procedures, where a 3-minute scrub with hexachlorophene has proved as effective in establishing surgical cleanliness as the former 10-minute scrub procedure.

A large number of patch tests has proved that hexachlorophene does not produce irritation or sensitization. Patch tests have been performed on more than 600 subjects using 0.5% and 1% hexachlorophene, and all tests were negative. Dr. Louis Schwartz, who developed the original Schwartz patch test, found that application of a soap containing 2% hexachlorophene to subjects produced less irritation than the same soap without bactericide, and less irritation than a control soap containing only a chemical deodorant.

Last, and certainly not least, is the fact that hexachlorophene has been used by the general public for the past five years in increasing quantities with complete safety.

The name "Hexachlorophene" is a generic name approved by the American Medical Association. A product which is clearly marked "Contains Hexachlorophene" carries with it a label which should greatly enhance its promotional value and sales appeal.

5-27-67

2227-60

ORTHO HYDROXYBIPHENYL

This versatile biocide functions both as a bactericide and as a fungicide. Its extremely low toxicity has permitted its use in such items as household sanitizers, children's finger paints and leather. In addition it is widely used to control micro-organism growth on citrus fruits.

As an indication of its safety, the U. S. Air Force in its Specification MIL-L-8067-A prescribes the use of ortho hydroxybiphenyl for leather items "which are to be used for prolonged intimate contact with the skin".

CONCLUSION

SOCCI#6618 is a highly effective combination bactericide and fungicide, suitable for a wide range of applications. It is safe to use and easy to apply.

Scientific Chemicals, Inc., the exclusive distributor of SOCCI #6618, maintains a fully equipped microbiological testing laboratory and is always pleased to work with customers to develop new uses for SOCCI #6618. Please do not hesitate to call on us if we can be of any service to you.

## SOCCI #6618 and SOCCI #6618-C

5-21-67  
2821 600

These two compounds are similar in their biocidal action, the bactericidal and fungicidal efficacy of these compounds being described in the technical bulletin on SOCCI #6618.

SOCCI #6618 and SOCCI #6618-C vary only in the emulsifier system used. The former compound is nonionic in nature and is designed principally for use in conjunction with thermosetting and thermoplastic resins to produce a durable finish. SOCCI #6618-C, on the other hand, is cationic in nature and is considerably more substantive to cellulose. It can be expected to retain its biocidal action through several launderings without the use of auxiliary resins. Nevertheless, SOCCI #6618-C is compatible with certain thermoplastic resin systems that are normally not sensitive to low pH ranges, and durability may be increased through the use of such resins.

PHYSICAL CHARACTERISTICS OF SOCCI #6618

SOCCI #6618 is a milky white nonionic emulsion concentrate, easy to pour and to dilute. It is compatible with a wide range of thermosetting and thermoplastic resins as described in the technical bulletin on this compound. It is harmed by freezing and should be protected.

Active principles:	10% 2,2'-methylenebis (3,4,6-trichlorophenol) (Hexachlorophene) 10% ortho Hydroxybiphenyl
Weight per gallon:	8.64 lbs. (at 77°F.)
pH:	7.5
Containers:	250 lbs. net fiber cartons

PHYSICAL CHARACTERISTICS OF SOCCI #6618-C

SOCCI #6618-C is a milky white cationic emulsion concentrate, easy to pour and to dilute. While normally used by itself to produce a semi-durable treatment, it can be used with certain compatible resin systems to increase its durability. It is harmed by freezing and should be protected.

Active principles:	10% 2,2'-methylenebis (3,4,6-trichlorophenol) (Hexachlorophene) 10% ortho Hydroxybiphenyl
Weight per gallon:	8.417 lbs. (at 77° F.)
Containers:	250 lbs. net fiber cartons.

5-27-67  
7827-60

- 2 -

In using either of the above products it is important that the fabrics be scoured after drying. Failure to do this may result in subsequent discoloration upon exposure to heat or ultra violet rays.