



METALWORKING FLUID ADDITIVES DIVISION

MERGAL® K14

Broad spectrum bactericide for Metalworking Fluid Applications
 EPA Registration No. 5383-104

Description

Water dilutable soluble oil, semi-synthetic and synthetic metalworking fluid systems are highly susceptible to the growth of microorganisms. Microbial contamination can result in slime generation, gas formation, malodors and the reduction or drift of pH in the fluid concentrate and the working dilution. This contamination can diminish fluid performance and system efficacy, which can increase costs, decrease tool life, reduce productivity and cause machine shut-down. The use of Mergal® K14, a proven high quality preservative to control biodeterioration, will help maintain product functionality and increase the life of the metalworking fluid.

**Application/
Use**

Mergal K14 is a liquid preservative designed for tankside application to working dilutions of soluble oil, semi-synthetic and synthetic metalworking fluid systems, which can all be subject to microbial degradation. The level of Mergal K14 required for optimum effectiveness is dependant upon the composition and dilution of the metalworking fluid, the severity of operation, and the type and degree of existing contamination. Mergal K14 is highly water soluble and requires no pre-mixing. Avoid dosing Mergal K14 in high temperature zones (ideally, add to fluid below 140°F/ 60°C) and avoid dosing at the same time and location as corrosion inhibitors and alkaline pH adjusters.

Highlights

- Broad spectrum of antimicrobial activity
- Ease of incorporation
- Longer-lasting efficacy than conventional CMIT/MIT isothiazolinone blends

**Physical
Properties**

The following are typical properties of Mergal K14; they are not to be considered product specifications.

Active Ingredient: 5-Chloro-2-methyl-4-isothiazolin-3-one 0.52%
 Active Ingredient 2-Methyl-4-isothiazolin-3-one: 0.18%
 Appearance: Clear amber liquid
 Specific Gravity, 25°C: 1.025
 Lbs/Gal: 8.53
 pH (25°C) 4.0
 Solubility Completely soluble in water

**Antimicrobial
Activity**

The following are examples of the broad range of organisms against which Mergal K14 has demonstrated efficacy:

Gram Positive Bacteria	Gram Negative Bacteria
<i>Bacillus subtilis</i>	<i>Pseudomonas aeruginosa</i>
<i>Staphylococcus aureus</i>	<i>Pseudomonas fluorescens</i>
<i>Streptococcus faecalis</i>	<i>Enterobacter aerogenes</i>
	<i>Escherichia coli</i>
	<i>Desulfovibrio desulfuricans</i>
	<i>Proteus vulgaris</i>

Function/
Activity

Mergal® K14 is a liquid preservative designed for tankside application to working dilutions of soluble oil, semi-synthetic and synthetic metalworking fluid systems, all of which can be subject to microbial attack and biodeterioration. Mergal K14 has a broad spectrum of antimicrobial activity, and easily disperses in metalworking fluids. Mergal K14 is not recommended for metalworking fluid concentrates.

Formulating
Considerations

Tankside additions of Mergal K14 to diluted metalworking fluids at application use levels of up to 0.20% (2000 ppm), based on the weight of the working dilution, will protect against a broad range of gram positive and gram negative bacteria and other microorganisms.

Tankside advisory: Mergal K14 may be used in systems with many popular fungicides. However, fungicides based on sodium pyrithione are not chemically compatible with Mergal K14. If used together, the efficacy of both will be compromised.

Regulatory
Considerations

Toxicity

Acute Oral Effects

LD50 (oral, rat) – 2352 mg/kg.

Acute Skin Effects

LD50 (dermal, rabbit) > 2000 mg/kg; corrosive (rabbit); skin sensitizer.

Acute Eye Effects

Corrosive (rabbit)

Acute Inhalation Effects

LD50 (rat, 4 hr) – 150 mg/m³ – 520 mg/m³.

SUBCHRONIC EFFECTS AND OTHER STUDIES

Request "Risk Management and Responsible Care Guidelines for Mergal K12N and K14" for more detailed toxicological information.

Environmental
Effects

Ecotoxicity

This product is toxic to fish. Do not apply directly to water or wetlands. Do not contaminate water when disposing of equipment washwaters. Data on the active ingredient, 5-chloro-2-methyl-4-isothiazolin-3-one/2-methyl-4-isothiazolin-3-one, is as follows:

Octanol/water coefficient: -0.401 (log P)

Biodegradation (aquatic metabolism): t_{1/2} anaerobic - 4.8 hr

Biodegradation (aquatic metabolism): t_{1/2} aerobic - 17.3 hr

LC50 (bluegill sunfish, 96 hr flow-through) - 190 µg/L

LC50 (rainbow trout, 96 hr flow-through) - 280 µg/L

Environmental Fate

This product is a pesticide and may cause adverse environmental impact. Avoid contamination of streams and sewers.

Chemical Inventories

This product, or its components, are listed on, or are exempt from:

Country	Agency	Registration Number and Sections
United States	TSCA	2682-20-4
United States	TSCA	26172-55-4
United States	EPA	5383-104
Canada	DSL	2682-20-4
Canada	DSL	26172-55-4
Europe	EINECS	220-239-6
Europe	EINECS	247-500-7
Switzerland	SWISS	G-38659
Australia	AICS	2682-20-4
Australia	AICS	26172-55-4
Korea	ECL	2682-20-4
Korea	ECL	26172-55-4
Korea	ECL Serial No.	KE-24316
Korea	ECL Serial No.	KE-05736
Japan	ENCS	2682-20-4
Japan	ENCS	26172-55-4
Japan	MITI No.	5-5235
Japan	MITI No.	9-378
Philippines	PICCS	2682-20-4
Philippines	PICCS	26172-55-4
China	IECSC	2682-20-4
China	IECSC	26172-55-4

Labeling

DANGER: Corrosive. Causes irreversible eye damage and skin burns. Do not get in eyes, on skin or on clothing. May be fatal if inhaled. Harmful if swallowed or absorbed through skin. This product may cause skin sensitization reactions in some people. Do not breathe vapor or spray mist. Wear goggles or face shield, protective clothing and chemical resistant gloves. Wear a mask or pesticide respirator approved by the National Institute for Occupational Safety and Health.

EU Regulations:

C – Corrosive

R34 – Causes burns.

R43 – May cause sensitization by skin contact.

R52/53 – Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Shelf Life: 24 months from date of manufacture

Emergency Overview: Mergal® K14 is a clear slightly yellow liquid with a mild characteristic odor. Highly acidic, pH 3-5. May cause severe eye and skin irritation with possible damage. May cause respiratory irritation. Skin effects may be delayed for hours. Excessive heat greater than 140°C (>284°F) will result in decomposition to formaldehyde. This material is toxic to fish. Avoid contamination of streams and sewers.

Handling,
Storage, Health
And Safety

Avoid contact with skin, eyes, or clothing. Avoid breathing vapor or mist. Wash thoroughly after handling. Keep container tightly closed. Use only with adequate ventilation. Store away from incompatible substances in a cool, dry, ventilated area. Do not contaminate water, food or feed by storage or disposal.

Mixers, loaders and others exposed to this product must wear: long sleeve shirt and long pants, socks and shoes, chemical-resistant gloves, chemical-resistant apron, protective eyewear and a respiratory protection device.

Request "Risk Management & Responsible Care Guidelines for Mergal® K12N and K14" for more detailed safe handling information.

Observe all Federal, State and Local regulations when storing or disposing of this substance.

Shipping And
Packaging

Mergal® K14 is packaged in:

Shipping Container	Net Weight
55 Gallon Drum	441 lbs/200 kg
8 Gallon Pail	66 lbs/30 kg
Product Code	30219X

DOT

Shipping Name UN3265, Corrosive liquid, acidic, organic, n.o.s.
(contains Isothiazolinones)
8, PG III, ERG# 153

Labels Required Corrosive

IATA

Shipping Name UN3265, Corrosive liquid, acidic, organic, n.o.s.
(contains Isothiazolinones)
8, PG III, ERG# 8L

Labels Required Corrosive

IMDG

Shipping Name UN3265, Corrosive liquid, acidic, organic, n.o.s.
(contains Isothiazolinones)
8, PG III, EMS# F-A, S-B

Labels Required Corrosive

For further information visit our website:
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