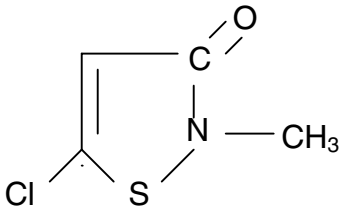
ISOCIL® RW-1.5

Isocil RW-1.5 is a high performance industrial microbiocide for use in recirculating water cooling towers, wood, mold and mildew control, pulp and paper mills, oil field injection waters and air washer systems. It has extremely broad spectrum activity, controlling bacteria, fungi, and yeasts without affecting product physical properties. Very low use levels make this product one of the most cost effective solutions on the market.

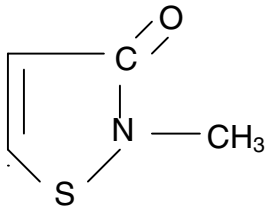
Chemical Composition

Isocil RW-1.5 is comprised of two primary active compounds, 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one, in a dilute aqueous solution that permits easy and safe handling.

Composition of Isocil RW 1.5
Major Chemical Components



5-chloro-2-methyl-4-isothiazolin-3-one



2-methyl-4-isothiazolin-3-one

Active Ingredients (nominal)

	% WT/WT
5-Chloro-2-methyl-4-isothiazolin-3-one	1.11 %
2-Methyl-4-isothiazolin-3-one	0.39 %
Total active ingredients	1.50 %

Inert Ingredients

Magnesium salts (As $Mg(NO_3)_2$	>3.0 %
Copper Salts	0.20 %
Water	95 %

Typical Properties

Appearance	Clear Liquid
pH	1.5 – 3.5
Odor	Mild
Density, gm./ml at 25°C	1.02

Compatibility

Isothiazolinones are generally compatible with most components of industrial formulations. However, the presence of a few agents will cause degradation of the active ingredients (and therefore some care is necessary). Agents such as thiols, mercaptans, secondary amines, sulfides and other nucleophiles are to be avoided in formulations. Conditions of high heat for long periods of time (> 50°C) and pH above 9 will lead to loss of activity.

Biocidal Performance

Isocil RW-1.5 isothiazolinone is a higher cost effective biocide preservative due to the low use levels required. While the specific use levels are application dependent, the following MIC values for isothiazoline activities are indicative of the effectiveness of the product.

Bacteria	ATCC No.	PPM, Isothiazoline 1.5% Active
Gram-Negative		
Achromobacter parvulus	4335	300
Alcaligenes faecalis	8750	300
Enterobacter aerogenes	3906	600
Escherichia coli	11229	600
Flavobacterium suaveolens	958	600
Klebsiella pneumoniae	13883	600
Proteus vulgaris	8427	600
Pseudomonas aeruginosa	15442	600
Pseudomonas cepacia	25416	600
Pseudomonas fluorescens	13525	600
Pseudomonas oleoverans	8062	300
Salmonella choleraesuis (typhi)	6539	600
Shigella sonnei	9290	600
Serratia marcescens	8100	600

Yeast	ATCC No.	PPM, Isothiazoline 1.5% Active
Candida albicans	11651	600
Rhototorula rubra	9449	600

Bacteria	ATCC No.	PPM, Isothiazoline 1.5% Active
Gram-Positive		
Brevibacterium ammoniagenes	6871	600
Bacillus cereus	11778	600
Bacillus subtilis	6633	600
Sarcina lutea	9341	600
Staphylococcus aureus	6538	750
Staphylococcus epidermidis	155	600
Staphylococcus agalactiae	624	600

Fungi	ATCC No.	PPM, Isothiazoline 1.5% Active
Asperigillus niger	9642	>750
Asperigillus oryzae	10196	750
Chaetomium globosum	6205	600
Gliocladium fimbriatum	32913	>750
Mucor rouxii	24905	>750
Penicillium funciculosum	9644	750
Pullularia (Aureobasidium) pullulans	9348	>750
Rhizopus stolonifer	10404	750

Safety and Handling

Isothiazolinones are available at 1.5% or 14% solutions. Both are corrosive and potential skin sensitizers. As such, keeping these solutions away from the skin is essential. Due diligence must be maintained at all times while handling these materials. When working with Isocil products, ensure that workers will not come in direct contact with the product. Proper selection of personal protective equipment is essential. Even if the slightest spill were to be absorbed onto a worker's clothing, it may work its way through and cause a delayed skin burn. If significant aerosolization is expected, then the appropriate self contained breathing apparatus is required.