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# ISOCIL™ MW-14

Isocil MW-14 is a high performance biocide for preserving metal working fluids, metal cleaning fluids, hydraulic Fluids, electrodeposition systems, polymer emulsions, natural latex, pigment dispersions, mineral slurries, paints, coatings and adhesives. It has extremely broad spectrum activity, controlling bacteria, fungi and yeasts while being compatible with most components in a formulation. Very low use levels make this product one of the most cost effective solutions on the market.

## Chemical Composition

Isocil MW-14 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.

## Active Ingredients (nominal)

|  | <u>% WT/WT</u> |
|--|----------------|
| 5-Chloro-2-methyl-4-isothiazolin-3-one | 10.80%         |
| 2-Methyl-4-isothiazolin-3-one          | 3.83%          |
| Total active ingredients               | 14.63%         |

## Inert Ingredients

|                                    |      |
|------------------------------------|------|
| Magnesium salts (As $Mg(NO_3)_2$ ) | ~23% |
| Water                              | ~63% |

## Typical Properties

|            |              |
|------------|--------------|
| Appearance | Clear Liquid |
| pH         | 2-4          |
| Odor       | Mild         |

## 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.

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## Biocidal Performance

Isocil MW-14 isothiazolinone is a more cost effective biocide preservative due to the extremely 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.

| <b>Bacteria</b>                 |          |                                | <b>Bacteria</b>                      |          |                                |
|---------------------------------|----------|--------------------------------|--------------------------------------|----------|--------------------------------|
|                                 | ATCC No. | PPM, Isothiazoline 1.5% Active |                                      | ATCC No. | PPM, Isothiazoline 1.5% Active |
| <b>Gram-Negative</b>            |          |                                | <b>Gram-Positive</b>                 |          |                                |
| Achromobacter parvulus          | 4335     | 300                            | Brevibacterium ammoniagenes          | 6871     | 600                            |
| Alcaligenes faecalis            | 8750     | 300                            | Bacillus cereus                      | 11778    | 600                            |
| Enterobacter aerogenes          | 3906     | 600                            | Bacillus subtilis                    | 6633     | 600                            |
| Escherichia coli                | 11229    | 600                            | Sarcina lutea                        | 9341     | 600                            |
| Flavobacterium suaveolens       | 958      | 600                            | Staphylococcus aureus                | 6538     | 750                            |
| Klebsiella pneumoniae           | 13883    | 600                            | Staphylococcus epidermidis           | 155      | 600                            |
| Proteus vulgaris                | 8427     | 600                            | Staphylococcus agalactiae            | 624      | 600                            |
| Pseudomonas aeruginosa          | 15442    | 600                            |                                      |          |                                |
| Pseudomonas cepacia             | 25416    | 600                            |                                      |          | PPM, Isothiazoline             |
| Pseudomonas fluorescens         | 13525    | 600                            |                                      |          | 1.5% Active                    |
| Pseudomonas oleovorans          | 8062     | 300                            |                                      | ATCC No. |                                |
|                                 |          |                                | <b>Fungi</b>                         |          |                                |
| Salmonella choleraesuis (typhi) | 6539     | 600                            | Asperigillus niger                   | 9642     | >750                           |
| Shigella sonnei                 | 9290     | 600                            | Asperigillus oryzae                  | 10196    | 750                            |
| Serratia marcescens             | 8100     | 600                            | 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                            |
|                                 |          |                                |                                      |          |                                |
| <b>Yeast</b>                    |          |                                |                                      |          |                                |
|                                 | ATCC No. | PPM, Isothiazoline 1.5% Active |                                      |          |                                |
| Candida albicans                | 11651    | 600                            |                                      |          |                                |
| Rhototorula rubra               | 9449     | 600                            |                                      |          |                                |
| Saccharomyces cerevisiae        | 2601     | 600                            |                                      |          |                                |

## Safety and Handling

Isothiazolinones at 14% active, 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 MW-14, 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.

## Regulatory Information

EPA Reg. No. 6836-240

For questions or for further information, please contact Lonza Technical Sales Support at [contact.allendale@lonza.com](mailto:contact.allendale@lonza.com) or call 1-800-365-TECH (8324).