

Front Panel

Wyandotte

PD-3367

A Non-Foaming Liquid Iodine Sanitizer and Germicide

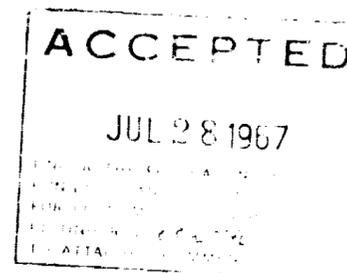
A.O.A.C. USE-DILUTION

| | |
|-------------------------|-------|
| Staphylococcus aureus | 1:640 |
| Salmonella choleraesuis | 1:640 |
| Pseudomonas aeruginosa | 1:640 |
| Salmonella typhosa | 1:640 |

Active Ingredients:

| | |
|--|---------|
| Iodine-Potassium iodide complex (providing 1.75% titratable iodine) | 5.00% |
| Phosphoric acid | 5.25% |
| Hydrogen Chloride | 5.45% |
| Inert Ingredients: | 83.30% |
| TOTAL | 100.00% |

CAUTION: KEEP OUT OF REACH OF CHILDREN. Harmful if swallowed. Avoid contamination of food. Product may cause skin or eye irritation. Avoid contact with skin and eyes. In case of contact flush immediately with cold water. For eyes get medical attention. Avoid inhalation of vapors. Rinse empty container thoroughly with water and discard it.



Contents: 1 gallon

U.S.D.A. Reg. No. _____

WYANDOTTE CHEMICALS CORPORATION
J. B. Ford Division
Wyandotte, Michigan

Plant Locations: California • Georgia • Michigan

DIRECTIONS FOR USE

Dairy, Beverage, Food Processing Equipment, Farm Bulk Tanks,
Pipe Line Milkers

A. Clear equipment immediately after use.

1. Rinse with clean water.
2. Wash with recommended Wyandotte product.
3. Rinse with clean water.
4. Air dry. Protect from dust and dirt.

B. Sanitize immediately before re-use with Wyandotte PD-3367.

Immersion or circulation -- Use 1/2 oz. of PD-3367 in each 5 gallons of water (12.5 ppm titratable iodine). Test periodically with iodine tester. When solution depreciates to 6.25 ppm, discard.

For spray method, use 1 oz. PD-3367 in each 5 gallons of water (25 ppm titratable iodine).

Wyandotte PD-3367 fulfills the criteria of Appendix F, as revised 1965, of the Pasteurized Milk Ordinance and Code Recommendations of the U. S. Public Health Service when tested by the Chambers method.



EXCELLENCE IN QUALITY PRODUCTS THROUGHOUT THE WORLD

Wyandotte

PD - 3367

LIQUID IODINE GERMICIDE - SANITIZER

For Disinfecting and Sanitizing All Types of Food and Beverage Processing Equipment.

- . FAST ACTING - PD-3367 offers quick germicidal and disinfecting action.
- . NON-FOAMING - Contains no detergent; produces no foam to retard germicidal action.
- . CIP SANITIZER - Recommended for sanitizing CIP equipment.
- . SOIL TESTER - Produces color change in milkstone and other films to expose unclean equipment.
- . YEAST CONTROL - Effective against some yeasts which resist chlorine action; such as yeasts used in breweries, distilleries and food processing plants.
- . NON-CORROSIVE -- PD-3367 is non-corrosive to 300 and 400 series stainless steel when used as directed.
- . HARD WATER ACTIVE - PD-3367 is effective in water with up to 32 grains hardness.



Weyandotte is a registered trademark of Weyandotte Chemicals Corporation.

Weyandotte

P D - 3 3 6 7

LIQUID IODINE GERMICIDE - SANITIZER

For Disinfecting and Sanitizing All Types of Food and Beverage Processing Equipment.

- . FAST ACTING - PD-3367 offers quick germicidal and disinfecting action.
- . NON-FOAMING - Contains no detergent; produces no foam to retard germicidal action.
- . CIP SANITIZER - Recommended for sanitizing CIP equipment.
- . SOIL TESTER - Produces color change in milkstone and other films to expose unclean equipment.
- . YEAST CONTROL - Effective against some yeasts which resist chlorine action; such as yeasts used in breweries, distilleries and food processing plants.
- . NON-CORROSIVE -- PD-3367 is non-corrosive to 300 and 400 series stainless steel when used as directed.
- . HARD WATER ACTIVE - PD-3367 is effective in water with up to 32 grains hardness.

DIRECTIONS FOR USE

Dairy, Beverage, Food Processing Equipment, Farm Bulk Tanks, Pipe Line Milkers, Brewery Equipment.

A. Clean equipment immediately after use.

1. Rinse with clean water.
2. Wash with recommended Wyandotte product.
3. Rinse with clean water.
4. Air dry. Protect from dust and dirt.

B. Sanitize immediately before re-use with PD-3367.

Immersion or circulation sanitizing -- Use $\frac{1}{2}$ oz. of PD-3367 in each 5 gallons of water (12.5 ppm titratable iodine). Test periodically with iodine tester. When solution depreciates to 6.25 ppm, discard.

For spray sanitizing and disinfecting cleaned equipment -- Use 1 oz. PD-3367 in each 5 gallons of water (25 ppm titratable iodine).

PD-3367 fulfills the criteria of Appendix F, as revised 1965, of the Pasteurized Milk Ordinance and Code Recommendations of the U. S. Public Health Service when tested by the Chambers method.

LIMITATION:

PD-3367, like other iodine products, is not recommended for aluminum, dairy tin, brass, chrome plate, or copper, unless exposure time is very short.

PHYSICAL PROPERTIES

PD-3367 is a dark brown, non-viscous liquid, having a slight characteristic odor. It is stable up to 120°F. Solutions in use concentrations are yellow in color.

CHEMICAL PROPERTIES

The pH of a 25 ppm solution (1 oz. of PD-3367 in 5 gallons of soft water) is 2.6.

Titratable iodine is 1.75%, specific gravity at 25°C. is about the same as water.

CAUTION: KEEP OUT OF REACH OF CHILDREN

Harmful if swallowed. Avoid contamination of food. Product may cause skin or eye irritation. Avoid contact with skin and eyes. In case of contact flush immediately with cold water. For eyes get medical attention. Avoid inhalation of iodine vapors. Rinse empty container thoroughly with water and discard it.

TECHNICAL SERVICE BULLETIN

PD-3367

6/7/67

Page 1

J. B. FORD DIVISION
Wyandotte, Michigan

WYANDOTTE CHEMICALS CORPORATION

PD-3367

IODINE SANITIZER & GERMICIDE

PURPOSE AND USE

For sanitizing or disinfecting all types of food and beverage equipment in dairies, dairy farms, food plants, breweries.

PD-3367 is especially recommended in C-I-P sanitizing.

ADVANTAGES OF PD-3367

1. Rapid disinfecting action.
2. Clear yellow solutions show presence of iodine.
3. Effective in hard water, even up to 32 grains per gallon hardness.
4. Non-corrosive to 300 and 400 series stainless steel when used as directed.
5. Low odor level.
6. Shows up dirty equipment by coloring milkstone or other films.
7. Registered with the United States Department of Agriculture.
Reg. No. _____.

EFFECTIVENESS

PD-3367 is a germicide as well as a sanitizer. The efficacy requirements of a germicide are more stringent than for a sanitizer because in the standard laboratory test (AOAC Use-Dilution Test) a germicide must destroy all organisms; whereas, a sanitizer may allow a small number of organisms to survive. Use-Dilution Test results indicate that PD-3367 at 25 ppm destroys the organisms shown in Table I. PD-3367 also passes the Chambers Test. See Table II.

TABLE I

ACAC USE-DILUTION TEST - 10th Ed. 1955
(PD-3357 at 1 Oz./5 Gallons)

| <u>Test Organism</u> | <u>Phenol Resistance</u> | <u>No. of Tests Showing Complete Destruction of Organisms</u> |
|--|--------------------------|---|
| <u>Staphylococcus aureus</u> (ATCC 4961) | 1:50 | 10/10 |
| <u>Pseudomonas aeruginosa</u> (ATCC 2782) | 1:80 | 10/10 |
| <u>Escherichia coli</u> (ATCC 11229) | 1:90 | 10/10 |
| <u>Salmonella choleraesuis</u> | 1:30 | 10/10 |
| <u>Salmonella typhosa</u> | 1:30 | 10/10 |

TABLE II

WEBER-BLACK METHOD & CHAMBERS MODIFICATION OF WEBER-BLACK (LSPHC)

Minimum Time (in Seconds) to Obtain 99.99% Kill
of Various Test Organisms with PD-3357

| <u>Test Organism</u> | <u>Distilled Water</u> | | | <u>Hard Water (200 ppr)</u> | | |
|--|------------------------|------------|------------|-----------------------------|-------------|-------------|
| | <u>1.0</u> | <u>1.5</u> | <u>2.0</u> | <u>2.0</u> | <u>12.0</u> | <u>12.0</u> |
| <u>Staphylococcus aureus</u> (ATCC 4961) | 15 | 15 | 15 | 15 | 15 | 15 |
| <u>Escherichia coli</u> (ATCC 11229) | 15 | 15 | 15 | 15 | 15 | 30 |
| <u>Pseudomonas aeruginosa</u> (ATCC 2782) | 15 | 15 | 15 | 15 | 15 | 30 |

Note that PD-3357 is as effective in hard water (200 ppr) against three commonly selected test organisms as it is in distilled water. Results are based on kill in 10 minutes at 100°F, as required by 10.1 of the Federal Sanitation Regulations and 10.1 of the Code of Regulations of the U. S. Public Health Service, 21 CFR 121.10.1.

NOTE: PD-3367 is effective against the chlorine resistant yeasts shown in Table III. This makes it of great interest to breweries, distilleries, and other processing plants where yeasts can be a problem. This effectiveness may vary against other yeast strains.

TABLE III
COMPARISON OF IODINE GERMICIDE PD-3367 WITH
SODIUM HYPOCHLORITE BY AVAILABLE CHLORINE GERMICIDAL
EQUIVALENT CONCENTRATION TEST - AOAC 10th EDITION 1965

| Test Organism | PD-3367 | | | Sodium Hypochlorite | | |
|---|-----------------------|----------|--------|------------------------|--------|--------|
| | ppm Titratable Iodine | | | ppm Available Chlorine | | |
| | 25 | 12.5 | 6.25 | 200 | 100 | 50 |
| <u>Staphylococcus aureus</u> (ATCC 6538) | 8 10 | 4 5 | 2 1 | 6 5 | 2 3 | 1 1 |
| <u>Salmonella typhosa</u> (ATCC 6539) | 10 10 | 9 9 | 6 7 | 7 7 | 4 5 | 2 2 |
| <u>Escherichia coli</u> (ATCC 11229) | 10 10 | 4 8 | 2 4 | 4 6 | 2 4 | 1 2 |
| <u>Pseudomonas aeruginosa</u> (ATCC 15440) | 9 9 | 5 7 | 1 3 | 4 5 | 2 2 | 0 0 |
| <u>Saccharomyces cerevisiae</u> Brewer's Strain | 10 10 | 10 10 | 5 6 | 8 7 | 2 2 | 0 0 |
| <u>Saccharomyces cerevisiae</u> Distiller's Strain | 10 10 | 7 7 | 4 4 | 0 1 | 0 0 | 0 0 |

Numbers indicate number of test culture disinfected by the corresponding concentration of active agent.

USE DIRECTIONS

Dairy, Beverage, Food Processing Equipment, Farm Bulk Tanks, Pipe Line Milkers:

A. Clean equipment immediately after use.

1. Rinse with clean water.
2. Wash with recommended Wyandotte product.
3. Rinse with clean water.
4. Air dry. Protect from dust and dirt.

B. Sanitize immediately before re-use with Wyandotte PD-3357.

Immersion or circulation -- Use 1/2 oz. of PD-3357 in each 5 gallons of water (12.5 ppm titratable iodine). Test periodically with iodine tester. When solution depreciates to 6.25 ppm, discard.

For spray method, use 1 oz. PD-3357 in each 5 gallons of water (25 ppm titratable iodine).

| <u>Application</u> | <u>Fluid Ounces per</u> | | <u>ppm</u> <u>Titratable Iodine</u> |
|-----------------------------------|----------------------------------|------------------------------------|--|
| | <u>5 gal. of</u> <u>Water</u> | <u>100 gal.</u> <u>of water</u> | |
| Sanitizing of cleaned equipment | 1/2 | 10 | 12-1/2 |
| Disinfecting of cleaned equipment | 1 | 20 | 25 |
| Sanitizing by spraying | 1 | 20 | 25 |

Solutions of PD-3357 must be made with water under 100°F.

Yellow color indicates presence of titratable iodine. When color fades, renew solutions.

In water over 32 grains per gallon hardness, use sufficient PD-3357 to obtain a pH between 2 and 4 in use solution.

PHYSICAL PROPERTIES

PD-3357 is a dark brown, non-viscous liquid, having a slight characteristic odor. It is stable up to 100°F. When dissolved in water, solutions in use concentrations are yellow in color.

PD-3357 will freeze at approximately the same temperature as water but, after melting, returns to its original condition with no loss of effectiveness.

CHEMICAL PROPERTIES

The pH of a 25 ppm solution (1 oz. of PD-3357 in 5 gallons of soft water) is 2.5.

Titratable iodine is 1.25% available iodine at 20°C. (1.25% of the available iodine is lost to the atmosphere).

Active Ingredients:

| | |
|--|---------|
| Iodine-Potassium iodide complex (providing 1.75% titratable iodine) | 6.00% |
| Phosphoric acid | 5.25% |
| Hydrogen Chloride | 5.45% |
| Inert Ingredients: | 83.30% |
| TOTAL | 100.00% |

HANDLING PRECAUTION

KEEP OUT OF REACH OF CHILDREN. Harmful if swallowed. Avoid contamination of food. Product may cause skin or eye irritation. Avoid contact with skin and eyes. In case of contact flush immediately with cold water. For eyes get medical attention. Avoid inhalation of iodine vapors. Rinse empty container thoroughly with water and discard it.

TITRATABLE IODINE DETERMINATION

The yellow color of the solution denotes the presence of titratable iodine. The minimum titratable iodine detectable visually is about 5 ppm. Presence of organic matter in solutions makes detection of the yellow color difficult and the visual technique is not recommended as a means of controlling the strength of such solutions.

The Wyandotte Iodine Test Kit should be used for determining the titratable iodine in use solutions.

TEST KIT PROCEDURE

1. Measure 200 mls. of use solution in a bottle (8 oz. bottle is suitable)
2. Add 3 spoonfuls of Reagent A and invert sample three times. If dark iodine color does not appear, insufficient iodine is present for effective germicidal action.
3. Add Reagent C drop by drop, holding the dropper at an angle of 45°. Shake solution after each dilution.
4. The endpoint is reached when addition of a drop of Reagent C causes a color change from pale yellow to colorless.
5. To determine the titratable iodine in use solutions, the following formula should be used:

$$\text{Number of drops of Reagent C} \times 2.1 = \text{ppm titratable iodine}$$

Example: Size of sample --- 200 ml.
Number of drops of Reagent C --- 10
Calculation: 10 x 2.1 = 21 ppm titratable iodine