

ANTIMICROBIALS FOR  
INDUSTRIAL  
APPLICATIONS



# Antimicrobial For Industrial Applications

The Antimicrobial Business of Jubilant Ingrevia offers **safer and efficacious solutions for Paints & Coating, Metal working fluids and other Various Industrial Applications.** Our antimicrobial product range is completely backward integrated through its greener pyridine chemistry & Chemical Intermediates. **With complete quality control, ISO certified plants,** backward integration with internationally acceptable standards and technical services (including microbial efficacy testing facility), we are a trusted 'Partner of Choice' for our globally renowned customers in the Paints & Coating and other allied industries like Metal working fluids, Master batches Textile & Polymer, Gypsum Board etc.

## BUSINESS OVERVIEW

### PRODUCTS

Our range of antimicrobials under the brand name Jubithione® includes:

- Jubithione® ZPTO (Powder)
- Jubithione® ZPT Fine Particle Suspension (EPA and Non EPA)
- Jubithione® CuPT (Copper Pyrithione Powder)
- Jubithione® NaPT (Sodium Pyrithione Aqueous Solution)
- Jubithione® DOZ Fine Particle Suspension
- Jubicide PAA (Per Acetic Acid 15%)
- Jubithione® ZPC+ Fine Particle Suspension
- Jubithione® ZPB Fine Particle Suspension
- Jubithione® NPB
- Jubithione® CZTO (CuPT & ZnPT FPS - New)

### SERVICES

We offer research, development, antimicrobial efficacy studies and custom manufacturing services for antimicrobial formulation for various industrial applications.

## PRODUCT PORTFOLIO

### Jubithione® ZPTO (Zinc Pyrithione Powder)

Zinc Pyrithione (ZPTO) is a well-known, highly active, broad spectrum antimicrobial agents used in various industrial product's applications.

#### Advantages:

- Broad range of activity against bacteria, fungi and moulds
- Excellent compatibility with surfactants and alkaline formulations.
- High photo- and thermal stability
- Low water solubility providing low leaching and hence prolonged efficacy and Long-lasting protection

#### End Applications:

- In-can preservative for Industrial products
- Dry-film preservative for Paint & Coatings
- Antifungal/Anti-algal agent in Soft-Fouling Marine and yacht Paints

- Antifungal/Anti-algal agent in cutting oils and coolants, in insulation materials, caulks, sealants, grouts, polyurethane flooring & coatings
- Preservative in adhesives, fabric care and plastic products (master batches)

#### Recommended Use Levels (As active % w/w):

- In-Can Preservative: 0.1-0.25%
- Dry-film Preservative: 0.2-3%
- Marine Soft anti-fouling: 2-4%

### Jubithione® ZPT 40 (Zinc Pyrithione 40% FPS)

#### An Effective Solution For Interior & Exterior Paints

ZPT 40 (Zinc Pyrithione 40% FPS), is a ready-to-use, white to off-white coloured fine particle aqueous suspension for effective can preservation, dry film preservation due to potent antimicrobial activity against fungi, bacteria, moulds, yeasts and to some extent against algae.

#### End Applications

- Paints & Coating as:
- Dry Film preservative
- In-can preservative

#### Dosage Levels

- Indoor Paints: 0.5-1.0%
- Outdoor Paints: 1.0-2.0%

### Jubithione® CuPT (Copper Pyrithione Powder)

#### Highly effective Biocide For Marine Antifouling Products

Ships, fishnets & other underwater equipment are prone to attacks by barnacles, mussels and algae etc The growth of marine organisms on the hull can increase frictional resistance thus increasing fuel consumption by 80% and also reduces speed of the ship . Jubithione CuPT is the most preferred solution for such problems.

#### Advantages

- Olive green powder
- Broad spectrum antimicrobial with excellent anti-algal efficacy
- Non VOCs and excellent heat and pH stability
- Low water solubility & low leach rate providing long term protection

#### End Applications

- Marine Antifouling Paint
- Algal Protections on Fishnet Coatings

#### Dosage Levels

- Powder as active: 2-4 % w/w

### Jubithione® NaPT (Sodium Pyrithione 40% Solution)

#### Jubilant's Jubithione® NaPT is amber color, clear, 40% aqueous solution of Sodium Pyrithione

Metalworking fluids are breeding grounds for microorganisms, particularly bacteria and fungi. It degrades fluid performance and damages all associated work pieces, tool etc, while can also cause allergies and skin problems in workers. Jubithione NaPT is safer and effective anti-microbial solution to these problems

#### Advantages

- High efficacy and growth inhibiting activity against bacteria, fungi, yeast & molds
- Ready for direct incorporation in customers formulations
- Water soluble
- Used as a wet-state preservative
- Possesses non-irritating and non-sensitizing properties

### End Applications

- As preservative for Lubricating Fluids
- Anti-fungal agent in Metalworking fluids, leather application, sealants, urethane foams, patching compounds

### Dosage Levels

- 0.5 - 1.25 % w/w

### Jubithione® DOZ

High Performance Biocide Formulation For In-can & Dry Film Preservation

### Advantages

- Three component synergistic fine particles aqueous dispersion of ZPTO-Diuron-OIT developed to treat various bacterial, fungal (moulds) and particularly algal depositions on surfaces.
- Broad antimicrobial efficacy with ZPTO-OIT (bactericide & fungicide) and ZPTO-Diuron (algaecide) combination offers both in-can & dry-film preservation (exterior & interior).
- Effective at low dosage of Diuron compared to conventional in-market compositions.
- Significant reduction of the environmental toxicity impact due to low dosage.
- Ready to use liquid, Non-VOC formulation

### End applications & Recommended Dosage

- Dry-film preservative: 0.75-1.5%
- Masonry coatings and Joint cements: 0.2-1.25%
- Caulks, Sealants: 0.4-2.2%
- Wood stains: 0.5-2.2%

### Jubicide® PAA (15% Peracetic Acid)

An Effective Sanitizer, Dis-infectant, Sterilant and Bleaching agent for a number of Industries

Jubilant produces different grades of PAA starting from 5% to 35%.

### Advantages

- Broad spectrum antimicrobial (effective bactericide, fungicide & sporicide)
- Powerful oxidant with potential that outranges chlorine and chlorine dioxide
- Environmental friendly as no toxic or mutagenic residuals and/or harmful decomposition by-products (DBP's)
- Bright, colourless liquid with a characteristic pungent odor and a low pH value
- No quenching/neutralization required as in case of any other chlorinated sanitizer.
- Low freezing point – stable at very low temperature.

### End Applications

- Cleaner/Disinfectant/Sanitizer for Home care, Food processing, Frozen Foods, Beverages & Dairy, Agriculture & Animal Health Care, Shrimp Farming, Cooling towers & Waste Water treatment, Medical, Pharmaceutical & Hospitals Textile and Pulp & Paper industry.
- Pesticide Bleaching agent in Textile and Pulp & Paper industry

### Jubithione® ZPC+

Next Generation Formulation For Anti-Viral & Hygienic Paints & Coating Applications

### Advantages & Benefits

- Patented technology with Synergistic blend of ZPTO with QUAT
- Excellent In-can and Interior dry film preservative/biocide, effective against bacteria, fungi and yeast/moulds.
- WHO recommended QUAT with high efficacy against viruses including COVID-19 as well as various other respiratory viruses.
- Highly cost effective as compared to Silver based biocides.
- Aqueous, ready-to-use, eco-friendly and preservative free biocidal composition

### End Applications

- Decorative and Marine (anti-fouling) paints
- Coatings & adhesives
- In-can preservative

### Dosage Levels (Active Basis)

- Indoor Paints (asactive): 0.1% - 0.25%
- Exterior Paints (asactive): 0.25% - 0.5%
- In-can Preservative: 0.1% - 0.25%

### Jubithione® ZPB

Synergistic Anti-Microbial & Preservation System for Pigment emulsions and Hygienic Coating Applications

An aqueous, ready to use, broad spectrum, cost effective synergistic bactericide-fungicide developed in-house for paints & coatings and preservation applications. It is a synergistic composition of 1,2-Benzisothiazolin-3-one (BIT) and Zinc Pyrithione (ZPTO) with dual antimicrobial function, showing high biocidal efficacy at very low concentration.

- Combination of two highly effective active ingredients (ZPTO & BIT) with different modes of action which provides "Complimentary Dual Antimicrobial Action".
- Excellent anti-microbial activity against bacteria, yeast, fungi and mold.
- Significantly reduced environmental toxicity due to reduction in total anti-microbial active requirement.
- No Labelling requirements as per EUH 208.
- Zero VOC & CMIT, MIT and formaldehyde free formulation.

### End Applications:

- In-can and Interior Dry film preservative
- Hygienic coatings
- Synthetic Polymer Emulsions
- Emulsion Paints
- Water based Adhesives
- Aqueous Pigment slurries/dispersions
- Printing inks
- Textile-Auxiliary substances.

### Dose Levels:

- Synthetic Polymer emulsion: 0.08% - 0.35%
- Emulsion Paints: 0.08% - 0.35%
- Water based Adhesives: 0.08% - 0.35%
- Aqueous Pigment slurries/dispersions: 0.08% - 0.3%
- Textile Auxiliary substances: 0.1%-0.3%

### Jubithione® NPB

Synergistic, Eco-friendly Anti-microbial System for In-Can Preservation

- Soluble composition of two highly effective active ingredients (NaPTO & BIT) with different modes of action to provide broad spectrum of activity.
- Significantly reduced environmental toxicity due to reduction in total anti-microbial active requirement.
- No Labelling requirements as per EUH 208.
- Low viscous liquid for easy handling.
- Zero VOC & CMIT, MIT and formaldehyde free formulation.

### End Applications:

- Acrylic Polymer emulsion.
- Water based adhesives.
- Metal-working fluids
- Urethane emulsion.
- Engineered wood & Gypsum boards
- Rubber & Paint industry

### Dose Levels:

0.1% - 0.5% (depending on individual application based efficacy studies)

## WHY JUBILANT?

### Backward Integration to the Basic Feedstock

The complete backward integration, (Molasses- Alcohol - Acetaldehyde-Pyridine -2-CP-ZPTO/CPC) up to the basic feedstock, is one of the major advantages that company has over the other manufacturers of Zinc Pyrithione and CPC. The molasses obtained from sugarcane enables Jubilant to use bio-ethanol as the primary feedstock for the manufacturing of Zinc Pyrithione and CPC. This brings in advantage of lower carbon foot print and high green content in our renewable raw materials. Our ZPTO and CPC possess ~ 43% and 77% green content

### Research Capabilities

Jubilant offers customized antimicrobial formulations for various applications. Our state-of-the-art infrastructure and well designed laboratory is capable of performing all sorts of microbiological tests (like, In-can & Dry film preservation efficacy studies) Zone of Inhibition test, Time Kill Test, MIC Studies and other performance evaluation studies related to biocides, preservatives and product prototypes as per AOAC, JIS ASTM, EN and BIS standards.

R&D facilities are located at Gajraula (UP) and Noida (NCR) with advanced equipments for R&D trials and scale-up studies including modern analytical equipments like Malvern Particle size analyzer, ICP OES, Viscometer, UV Spectrophotometer etc.

### Care For Environment

Jubilant saves a considerable amount of Green House Gas emissions by using bio-ethanol as its primary feedstock unlike other manufacturers using petro based feed stock (Naphtha). Jubilant saves an estimated 10-30% of CO<sub>2</sub> Emission as compared to its competitors.

### Global Reach

Jubilant has wholly owned subsidiaries with offices in US, Europe and China. Outside India, the company holds warehouses in Belgium, USA and China. Additionally, Jubilant has global sales and distribution networks worldwide.

### EcoVadis

Registered at EcoVadis for integrating our sustainability framework which helps us to continuously monitor and improve our sustainability standard for the benefit of our customers, stakeholders and environment.



## OFFICE LOCATIONS

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\*It is the responsibility of the finished goods manufacturer to ensure their product is compliant with the applicable regulations. Recommended product's use levels may vary depending on country. For any additional information or clarification, please contact Jubilant Ingrevia Ltd.

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