

Effective water treatment with LANXESS biocides

- LANXESS manufactures specialty variants and formulations of biocides
- LANXESS active ingredients for formulation of Veriguard for efficient water treatment

Mumbai. As is widely known, water requires adequate treatment before it can be used for industrial applications such as a processing or a cooling medium. Also, water is often a key component for process chemicals and additives.

For example, in the production of pulp and paper, water is one of the key components and fulfills numerous functions in the process. It is not only used as a transport medium for cleaning and cooling, but also as a lubricant. Water is also used as the 'binding agent' for forming hydrogen bonds between the fibers within the paper sheet.

The combination of water, good aeration and a continuous supply of nutrients such as organic or inorganic compounds that is usually present in cooling water systems, harbors quick growth of microorganisms. Once air and water mix in an untreated air conditioning system, the resulting vapor and water droplets may contain bacterially produced toxins as well as tiny particles of biomass. When microorganisms are contained in the water, they can grow rapidly. They either appear as planktonic organisms (free in suspension) or as sessile organisms (attached to surface) where they grow and form slime layers. As soon as the slime layers grow thicker, the internal slime layer environment changes and allow other organisms like anaerobic bacteria to grow and produce acidic by-products. The presence of microorganisms can result in blockages, corrosion, reduced heat transfer, increased downtime or increased

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expenditure. Biological fouling may severely affect process equipment in an operating plant, which leads to a continuous reduction of performance and efficiency. Microorganisms are a potential health hazard not only to man but also to the environment.

In order to treat microorganisms like bacteria, algae and fungi in cooling water systems or paper mills, oxidizing as well as non-oxidizing biocides are commonly used. Oxidizing biocides are very effective against most problematic organisms. They react readily with the general protoplasm of bacteria, and kill very quickly. However, the high reactivity and low persistence of most oxidizing biocides can leave certain microorganisms unharmed raising the need for other classes of biocides. Non-oxidizers are more persistent than oxidizers and can handle organisms that are not or poorly effected by oxidizers.

LANXESS, the market leader of non-oxidizing biocides in India offers active ingredients with several biocidal applications. Whether for cooling water treatment, the treatment of pulp and paper or other water treatment applications, LANXESS has the capabilities to develop the right solution for every microbiological problem in water treatment applications. While some are commodities, there are some specialty variants with unique applications for water treatment. Following are examples of the active ingredients are used for formulation of Veriguard®.

DGH (Dodecylguanidine Hydrochloride)- Guanidines as well as Quats (quaternary ammonium compounds) are moderately fast killing agents against bacteria, algae, and fungi. They are very stable in water within pH 1 to 12 and is also chlorine tolerant. The treatment with DGH is more effective and covers several gaps found in Quats, like sulphate reducing bacteria (SRB). DGH also shows a good efficacy against Gram negative bacteria and other contamination

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problems in water treatment. The efficacy can even be improved when DGH is blended with Sulfone or Quats.

MBT (Methylene bis thiocyanate)

MBT is used to control bacteria, algae, yeasts and fungi in industrial water systems, especially in paper mills. As a fungicide MBT is especially toxic to superficial moulds and cellulose-decomposing fungi. Moreover, MBT also serves as a popular corrosion inhibitor for non-ferrous metals. MBT is stable in water with a pH of less than 7.

SULFONE

Sulfone is an industrial biocide useful to control undesirable growth of microorganisms. It is highly active at very low concentrations and most reactive in a pH range between 6.5 and 7.5 and is also chlorine tolerant. Sulfone is mainly used as a slimicide and algacide in process water circuits, e.g. in the paper industry.

LANXESS has laboratories in Singapore, Pittsburgh, Mexico City, Leverkusen and Sao Paulo. Each of LANXESS' laboratories across the globe is able to provide a broad spectrum of methodologies, including evaluations of the biocide's efficacy and stability, minimal inhibitory concentrations (MICs), and proper ratio of actives, which helps to find a tailor-made solution. These specialty formulations give LANXESS a competitive advantage.

LANXESS offers not only a broad spectrum of solutions but also eco-friendly products that do not contain formaldehyde, VOC or solvents. With a highly skilled technical support staff, LANXESS is able to advise users regarding the applications of LANXESS biocide products.

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The LANXESS business unit Material Protection Products offers one of the broadest product lines in industrial biocides and preservatives and belongs to the LANXESS' Performance Chemicals segment.

Detailed product information can be found at

<http://lanxess.in/en/industries-products-india/business-unit-india/material-protection-india/>

About LANXESS.

LANXESS is a leading specialty chemicals company with sales of EUR 9.1 billion in 2012 and roughly 17,400 employees in 31 countries. The company is currently represented at 50 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of plastics, rubber, intermediates and specialty chemicals. LANXESS is a member of the leading sustainability indices Dow Jones Sustainability Index (DJSI) World and FTSE4Good as well as the Carbon Disclosure Leadership Index (CDLI).

Forward-Looking Statements

This news release may contain forward-looking statements based on current assumptions and forecasts made by LANXESS AG management. Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.

Information for editors:

All LANXESS news releases and their accompanying photos can be found at <http://press.lanxess.com>. Recent photos of the Board of Management and other LANXESS image material are available at <http://photos.lanxess.com>. The latest TV footage, audiofiles and podcasts can be found at <http://corporate.lanxess.com/en/media/audio-video>.

You can find further information concerning LANXESS chemistry in our WebMagazine at <http://webmagazine.lanxess.com>

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