



Surface Technologies

Technical Product Bulletin

P3-ferrocid® 8599

Biocide with hardness stabilizing and dispersing properties for cooling water in air humidifiers

Principal application:

P3-ferrocid 8599 is a combination product for the treatment of water in the air washer section of an air humidifier plant (air conditioner). Due to the broad range of activity, P3-ferrocid 8599 destructs biological life like bacteria, fungi and slime forming bacterias.

P3-ferrocid 8599 is also active in the control of Legionella pneumophila and Legionella gormanii bacteria, which causes Legionnaire's disease.

P3-ferrocid 8599 inhibits hardness precipitations in nozzles, on air washer chamber walls and in recirculation pipes.

Organic and inorganic deposits are dispersed and removed by blow-down.

P3-ferrocid 8599 is efficient in a pH-range from 7.5 to 9.0.

General description:

P3-ferrocid 8599 is a liquid combination product, based on a broad spectrum biocide, a hardness stabilizer and dispersant.

Appearance:

Clear to slightly turbid, yellowish liquid

pH (1 % Solution):

9.5 ± 0.3

Density (20° C):

1.02 ± 0.02 g/cm³

Sensitivity to Freezing:

below 0 °C

Flashpoint (DIN 51 755): 45 ± 1 °C

**Total P-content
calculated as PO₄³⁻:** 0.35 ± 0.07 %

Application: P3-ferrocid 8599 is ready for use and recommended for continuous treatment in air washers and air humidifiers.

The product concentration range is 400 to 600 ml/m³ recirculation water. Dependent on the concentration ratio (CR) in the air washer, different amounts of P3-ferrocid 8599 are added to the make-up water, so that the product concentration recommended is achieved:

<u>Examples:</u>	Dosage per m ³ make-up water [ml/m ³]	Application concentration in recirculating water [ml/m ³]
CR 1.5	300	450
CR 2.0	250	500
CR 3.0	200	600
CR 4.0	150	600

To inhibit the development of resistant types of bacteria, the air washer section should be cleaned regularly. After cleaning an alternative biocide (P3-ferrocid 8580 or P3-ferrocid 8590) should be used in high concentration for shock treatment for approx. 4 hours. After treatment water has to be discharged and the system has to be filled with fresh water.

In times of cleaning and shock dosing of alternative biocide, air circulation has to be interrupted.

Attention: Use biocides safely. Always read label and product information before use.

Dosage: Dosage of P3-ferrocid 8599 should be done by an automatic feeding equipment regulated by the amount of make-up water. Automatic dosing of P3-ferrocid 8599 and automatic control of correct CR, make-up and blowdown water is necessary to achieve optimal treatment results.

Is the adjusted CR too high, scaling of water hardness components will occur. Is CR too low, optimal concentration level of biocide will not be reached.

Maximum CR must be adjusted in the way that total alkalinity does not exceed 320 ppm CaCO₃.

Analytics: If P3-ferrocid 8599 is dosed automatically as described above, a regular control of recirculation water generally is not necessary.

If required, P3-ferrocid 8599 content in recirculation water can be determined by the PO_4^{3-} concentration. The PO_4^{3-} content of the make-up water has to be taken into account. Determination of the PO_4^{3-} content can only be carried out after oxidative decomposition of the phosphonic acids in P3-ferrocid 8599.

Method of analysis:

Henkel method A13-Total phosphate III

$$\begin{aligned} 100 \text{ g/m}^3 \text{ P3-ferrocid 8599} &= 0,35 \text{ g/m}^3 \text{ PO}_4^{3-} \\ 1 \text{ g/m}^3 \text{ PO}_4^{3-} &= 285,7 \text{ g/m}^3 \text{ P3-ferrocid 8599} \end{aligned}$$

Storage:

P3-ferrocid 8599 is stable for 12 month at 20 °C/68 °F. At higher storage temperatures the stability decreases.

Colour of product can change to orange during storage. The colour change does not affect product efficiency.

Handling precautions:

Process water treated with P3-ferrocid 8599 in recommended concentration, does not cause skin irritation. For handling the concentrated product, please see material safety data sheet.

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Revision date: 30-01-2003

Print date: 02-04-2003