



Arquad MCB-50

Guideline formulation on Arquad MCB-50 for surface disinfection

Quaternary ammonium salts are widely used in formulations for the control of bacteria, fungi and algae. This technical data sheet gives information on a guideline formulation based on one of AkzoNobel's main products in disinfection called Arquad MCB-50. Typical data, properties and data on biocidal activity are shown on the next pages.

Product

AkzoNobel produces an extensive range of fatty amine derivatives with antimicrobial properties. The outstanding features of quaternary ammonium compounds as disinfectant are high efficacy against a broad spectrum of micro-organisms and relatively low toxicity when used at recommended use level. The formulations based on Arquad MCB-50 can be manufactured colourless and odourless and are very stable at a wide pH range. Quaternary ammonium compounds (QAC) are available in an extensive range of commercial products. One of the most important QAC suitable for use in formulations for microbiological control is Arquad MCB-50.

AkzoNobel supports customers with toxicity files (via a "Letter of Access"); these contain detailed information on the active ingredient used in this guideline formulation. AkzoNobel Surface Chemistry committed to continue activities within the field of biocides after the implementation of the BPD. Our main products are notified and will be registered and accordingly will continue to be available for our customers in the future. An extensive research program was undertaken to develop a formulation with optimal performance around this active ingredient.

It is well known that organic soiling on surfaces to be disinfected may protect organisms and interact with biocidal agents. Our formulation has been designed for step 2 of a two-stage process of first cleaning and then disinfecting. The recommended guideline formulation gives optimal wetting of the surface to achieve intimate contact between the biocide and the micro-organisms to be controlled.

QAC perform equally in hard or soft water against the gram positive bacteria, but their performance against the gram negatives (especially *Pseudomonas*) can be seriously affected by hard water salts. The quality of the water can therefore be critical. The guideline formulation developed includes a sequestering agent to solve this problem.

The test on biocidal activity (Suspension test EN1276) was not only performed at the obligatory water hardness of 17 °dH (= 300 mg/kg as CaCO₃), which is rather high, but also at reduced water hardness of 5 °dH (= 90 mg/kg as CaCO₃) which is more related to practice.



Guideline formulation

Composition

- 15% Arquad MCB-50 (Coco(fractionated)benzyltrimethylammonium chloride)
- 3% Berol 175 (Lauryl myristyl alcohol ethoxylate (7.5))
- 9% Dissolvine E-39 (EDTA 4 Na)
- balance water

Ready to use concentration

The ready to use concentration is a 1:100 dilution of the guideline formulation at high water hardness (17°dH) or 1:300 at low water hardness (5°dH).

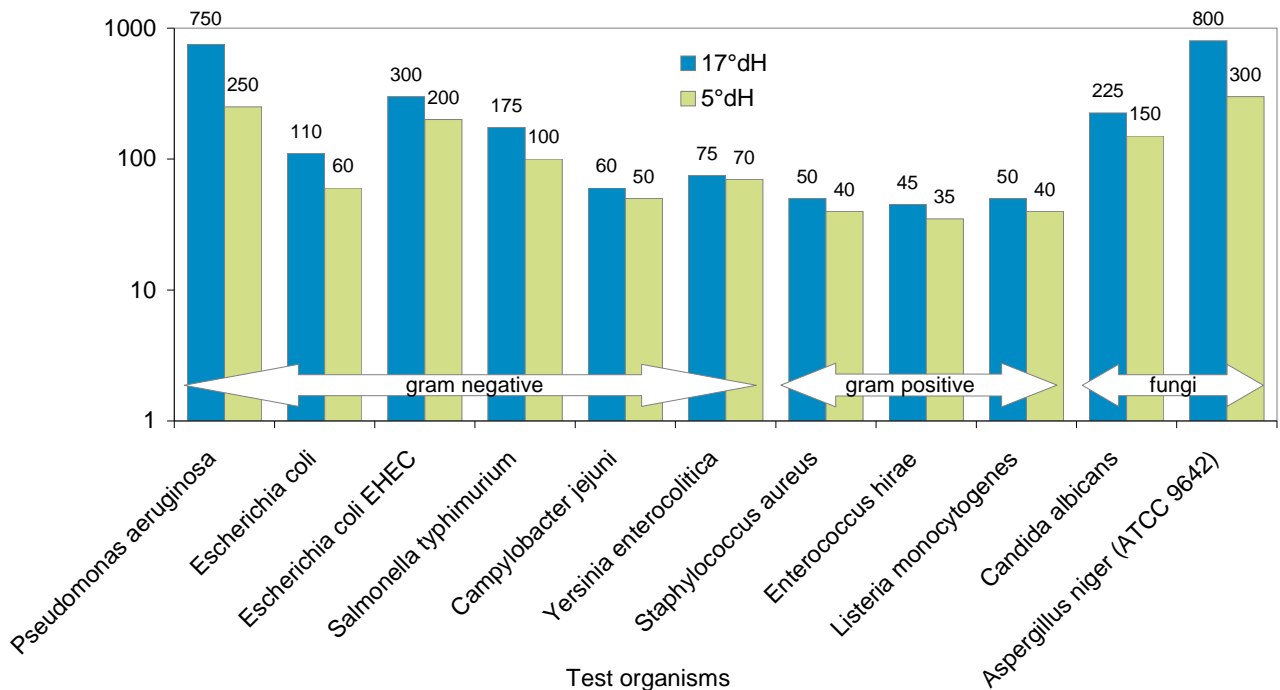
Typical data and properties

| Properties | Concentrate | 1:100 dilution |
|---|------------------------|------------------------|
| Appearance at 20°C | clear liquid | clear liquid |
| Clarity interval | 0 - >80°C | 0 - >80°C |
| Density | 1000 kg/m ³ | 1000 kg/m ³ |
| Melting point °C | approx 0°C | approx 0°C |
| pH | approx 11.5 | approx 9.8 |
| Foam height (20°C, 3.8 °dH according to "Vindan") | | |
| Immediately | | 230 mm |
| After 1 minute | | 230 mm |
| Surface tension (Du Noüy) | 29.5 mNm | 29.5 mNm |
| CMC | 0,04 g/l | |

Disinfectant effect of the Arquad MCB-50 formulation at different levels of water hardness

Contact time: 5 minutes (bactericidal) – 15 minutes (fungicidal)
 Protein load: 0.03%
 Water hardness: 17°dH, 5°dH
 Formulation (% as such): 15% Arquad MCB-50
 9% Dissolvine 39
 3% Berol 175

Conc. of Arquad MCB-50 [ppm active substance] to pass the test



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