



Committee on Products & Processes

The Use of Silver-based Disinfectants in Public Water Supplies

Summary

The Committee on Products and Processes for Use in Public Water Supply (CPP), has recently considered an application for the use of a product based on silver nitrate and hydrogen peroxide as a disinfectant for water for public supply.

The CPP concluded that products containing silver salts could not at this time be recommended for approval for continuous use as disinfectants for water for public supply.

Introduction

The bactericidal properties of silver have been recognised for sometime now. It has found particular application in situations where the use of chlorine would not normally be feasible.

These are usually short-term uses such as at campsites, on ships and on aircraft; Russian cosmonauts are understood to have used silver for the disinfection of water on board spacecrafts.

The Secretary of State has approved a number of products containing silver and hydrogen peroxide for use in:

- The emergency disinfection of water and
- The cleaning of equipment and treated water

installations and pipes.

The Committee approved the use of a silver-hydrogen peroxide product for use in swimming pools. This approval was granted under the "voluntary" approval scheme. That scheme is now discontinued.

The use of currently approved silver-containing products is subject to the following conditions of approval:

- i. *the dose of product is such that the concentration of silver in the water does not exceed $80 \mu\text{g l}^{-1}$; and*
- ii. *consumers are exposed to water containing silver for only as long as is required to restore conventional treatment, or for no more than 90 days in any period of a year, whichever is applicable.*

These conditions ensure that there is only a limited exposure of the consumer to silver.

Uncertainty over long-term health effects

Application for the long-term use of silver has been refused by the Secretary of State on the advice of the CPP because of uncertainty over the long-term health effects of silver. There are no data on the long term health effects of silver. The CPP is therefore unable to carry out a risk assessment of the long-term health effects of silver. This is in contrast to the approvals granted by the Secretary of State which by the use patterns imply a limited exposure to silver.

The Committee consider that in order to be able to make a full assessment of the long-term health effects of silver, there has to be adequate data in the form of carcinogenicity, teratogenicity, mutagenicity and sub-chronic (90-day) toxicity studies.

When this data is available the CPP will be able to re-consider its position concerning use of silver for disinfection of public water supplies.

Use of copper-silver ionisation systems for control of legionella within buildings

This report deals only with the use of silver nitrate as a disinfectant for permanent use in public water supplies. The CPP is currently not able to recommend use of silver for continuous or permanent use in public water supplies. This does not imply that the CPP considers silver to be toxic, although there is currently insufficient data upon which to base a health risk assessment.

This should not be an obstacle to the use of copper-silver ionisation systems in the control of legionella and other waterborne bacteria. In these situations, exposure to silver via drinking water may not occur and where it does occur, exposure via drinking water is likely to be limited.

Therefore the uncertainties associated with the long-term toxicity of silver should be balanced against the potential benefits through control of legionella.