Elsil

The ultimate solution for safe aircraft water supply

Introducing Elsil, a revolutionary new product that purifies water leaving it clean and safe, free from taste and odour.

Background

For obvious reasons the water supplied in passenger aircraft must be physically stored in tanks. This is true not only on the aircraft but also during its transport to the aircraft in water trucks.

Over time, stored water and water tanks will naturally stagnate as bacteria and algae build up. To prevent this, special treatment is needed to maintain water quality and keep storage tanks clean and free from micro-organisms.

Elsil is the most advanced treatment available to achieve this objective.

What is Elsil?

Elsil uses new technology to adapt proven, highly effective anti-bacterial processes for use in aviation.

Its key ingredient is Hydrogen Peroxide (H_2O_2). Over time, this breaks down to form oxygen (O) and water (H_2O). The oxygenation process effectively attacks bacteria maintaining fresh drinking water and clean storage tanks.

Hydrogen Peroxide is supported by a trace element of Silver. This helps to control the oxygenation process allowing Elsil to be effective for up to 10 days. It also helps Elsil to attack bio-films and other possible pathogens that single stage treatments cannot destroy.

The combined product allows Elsil to attack all types of bacteria, spores, fungi, algae and bio film without exception. No other chemical achieves this.

When is Elsil used?

Elsil is used to treat water after it has been taken from the mains water supply.

It is added to the water truck as water is collected from the public water supply. Elsil remains in the water as it is stored and pumped onto aircraft. Consequently Elsil is also completely safe for human consumption.

Elsil continues to be effective for up to 10 days and constantly protects both the water and the water tank from dangerous micro-organisms.

Elsil can also be used, when required, for sterilising water trucks and aircraft water tanks.

How is Elsil used?

In daily use, for preparing drinking water, Elsil is added at only 1 part in 10,000 (100ml of Elsil per 1000 litres of water). It requires a minimum contact time of 30 minutes

When sterilising water tanks Elsil is added at 1 part in 1000 (1 litre of Elsil to 1000 litres of water). This requires a minimum contact time of 2 hours.

How safe is Elsil?

Elsil is naturally safe and is manufactured from simple chemicals with extensive scientific and medical history.

Hydrogen Peroxide was discovered in 1818 and is widely used in medicine for its anti-bacterial properties.

Silver has been used for medicinal purposes since ancient times. Because it can build up in the body, the World Health Organisation has set a recommended limit for silver intake.

At drinking water strength Elsil is 1/166th of the WHO guideline. Because of the body's natural tolerance levels for water it would be physically impossible to exceed the maximum allowance.

Ecology

The only bi-products of Elsil are oxygen and water. It is consequently as safe for the environment as rainwater and fresh air.

Elsil comparison with Chlorine

	Elsil	**Cl**
Effective in use	10 days	24 hours
Mixes easily with water	Yes	No
Universal use	Yes	No
Long term effect	Yes	No
Bacterial killing effect	Good	Good
Effective against bio films	Yes	No
Algaecidal effect	Good	Poor
Fungicidal effect	Good	Poor
Prevents recontamination	Yes	No
Easily measurable in use	Yes	No
Neutral pH	Yes	No
Sensitivity to temperature	No	Yes
Long term storage	Yes	No
Required dosing	Low	High
Taste	None	Yes
Odour	None	Yes

Advantages of using Elsil

Advantages for Airlines and Passengers

- ✓ Elsil attacks all known bacteria, viruses and bio films providing good clean water.
- ✓ Elsil is completely safe for human consumption.
- ✓ Elsil is completely tasteless and odour free providing perfect tea, coffee and drinking water.
- ✓ Elsil will also treat aircraft water tanks.

Advantages for Ground Handlers.

- ✓ Elsil is a liquid and mixes completely with water without any additional mixing.
- ✓ Supplied in pre-measured bottles. Simply pour into the water tank at only 1 part in 10,000.
- ✓ Elsil cleans tanks, pumps, taps and pipes and does not require flushing after a sterilisation program
- ✓ Managed and checked by a simple dip test procedure.

Dosing Chart for uplifting drinking water	
Amount of water uplifted	Amount of Elsil
Litres	Millilitres
100	10 ml
500	50 ml
1000	100 ml

Dosing Chart for sterilisation	
Amount of water uplifted	Amount of Elsil
Fill tank to capacity	
100 litres	100 ml
500 litres	500 ml
1000 litres	1 litre

Technical Data Sheet

Distributor	Skykem Bellbrook Park Uckfield East Sussex TN22 1QF

Skykem is a division of Elsan Ltd who are registered at this address.

Telephone	+44 (0) 1825 748200
Fax	+44 (0) 1825 761212
e-mail	skykem@elsan.co.uk

Designation:	Drinking Water Disinfectant.
Function:	Preservation of water taken from the National/Regional water distribution system for short term storage and use.
Commercial Name:	Elsil
Manufacture:	Production of Silver Complex Dissolution into Hydrogen Peroxide Dilution to finished product activity
Appearance:	Clear colourless liquid, odourless and tasteless
Boiling point:	101 deg C
Freezing point:	Minus 3 deg C
Shelf life:	2 Years from manufacture.
Approvals:	Toxicity assessment carried out by UK Public Analyst
Analytical Method:	Silver content – ICP-MS Hydrogen Peroxide – Potassium Permanganate
In Use Control:	By means of dip stick and colour chart:

Conditions of Use

Labelling:	User label instruction to dose at 0.1ml per litre Sterilisation procedure instruction to dose at 1.0ml per litre
Storage:	Ideally in cool dry area
Precautions:	Good chemical hygiene standards Appropriate personal protection
Disposal:	As local conditions allow depending on quantity

Dosing:

Fresh Tap Water :- 0.1 ml per litre with a minimum contact time of 30 minutes.

Emergency Water Supplies :- 0.5 ml per litre with a minimum contact time of 2 hours.

Active life during water supply storage :- Up to 10 days

Tank and container sterilisation :- 1ml per litre of water with a minimum soak time of 2 hours (this water should be discarded when sterilisation is complete, no flushing of tanks is needed).

Physical and Chemical Properties

Formula:	Hydrogen Peroxide 3.0% Silver 0.006% Water to 100
CAS No:	Main Ingredient 7722-84-1
Possible Reactions:	Hydrogen Peroxide is a not reactive at a level of 3% and is not considered to be harmful.

Toxicological Information

Report from Public Analyst

Notes

In use level of 0.1 ml/litre results in an initial concentration of Silver @ 0.00006 mg/litre and Hydrogen Peroxide @ 3.0 mg/litre in the water for consumption.

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Report No: 01482801. 1
Sample No: 0524/2121

For the attention of Tony Howarth

CERTIFICATE OF ANALYSIS

Sample marked ..... Elsil Purification For Drinking Water
Purchase Order No. 7782

Received ..... 13/12/2000 **at** 08:45

Sample described as .. Elsil Purification For Drinking Water

Results of Analysis

Loc.	Test Code					
EUNC	C1250	Silver (Ag)	.....	40	mg/l	On product as received.
EUNC	C1250	Silver (Ag) after dilution	.....	4	µg/l	0.1ml to 1 litre with tapwater, 30 minutes standing
EUNC	C9997	Hydrogen peroxide	.....	2.7	g/100 ml	
EUNC	C9997	Hydrogen peroxide after dilution	.....	3	mg/l	0.1ml to 1 litre with tapwater,30 minutes standing .

Observations

As judged by the above results and on the basis of information found in the scientific literature on the properties of silver and hydrogen peroxide there is no evidence, in my opinion, that use of this product at the recommended dose is harmful to human health. The evidence indicates that water treated with the product at the recommended dose may be safely consumed on a regular basis.

In my opinion there is no indication that the concentrate represents a serious hazard to people using it nevertheless it would be prudent to avoid unnecessary contact. The label bears suitable precautions regarding contact with skin and eyes. Consideration should be had to including on the label suitable instructions regarding storage to avoid decomposition of the hydrogen peroxide and pressure build up.

This report summarises my report 01477402 issued 29th January 2001.

Jeremy P Wootten

Date : 30 January 2001