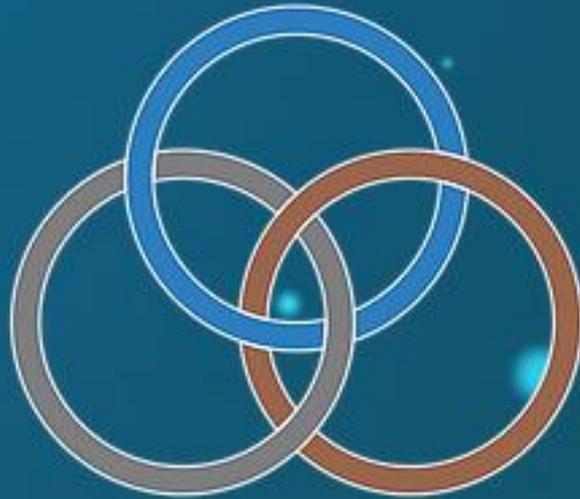


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BION
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BION – end to end solutions for your water treatment needs



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At the AA&S Conference 2012, the
following presentation was given:





A presentation slide with a blue background. At the top center is the BION logo, which consists of three interlocking circles in blue, green, and yellow, with the text 'BION' in black and 'Water Synergetics' in smaller text below it. Below the logo is the title 'Advantages of airframe cleaning using foam application of detergents' in black text. Underneath the title is the name 'Charles D. Cheesman'. At the bottom of the slide is a black banner containing the stylized 'A' logo on the left, and the text 'AIRCRAFT AIRWORTHINESS AND SUSTAINMENT CONFERENCE AUSTRALIA 2012' on the right. Below the banner is the website 'www.bionwatersynergetics.com.au' and a small number '1' in the bottom right corner. On the right side of the slide, there is a vertical strip of five small images: a river with rocks, an aircraft wing, a helicopter, another aircraft, and a green field.





A recap of what was offered in that presentation





What do we mean by: “Foam Application of Detergents”?

**It is simply, applying detergent to the
airframe in a foam pack, rather than in an
aqueous solution.**



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Cost Advantages are achieved by:

- **Reduction in labour – man hours**
- **Reduction in product usage**
- **Reduction in ongoing maintenance**





Reduction in labour – man hours

Significantly reduce time
required to apply product
to airframe.





Reduce amount of time required to remove contaminant from airframe.

- Material applied as a foam pack does not dry as fast as aqueous solutions.
- The foam pack has a different cleaning action than aqueous solutions. It lifts the contaminants better from the surface being cleaned and suspends them.





Reduction in product usage

- Reduces Wastage
- Stays on airframe
- Usage on demand, nothing is mixed and thrown away
- Product is mixed in correct proportion





Reduction in ongoing maintenance

- Less wear and tear on components
(Due to better removal of dirt, metal fines & carbon)
- Reduces wear by abrasion & binding
- Due to low pressure application will not over-wash hinges and bushes.
- Will not penetrate seals and rod ends
- Improved corrosion control – Only if correct cleaners are used.



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Practical Considerations in Application of Detergents as a Foam





The most important detail is to draw
a distinction between
foam and frothy water.





Good foam is less than 1/10 the density of water



=





This is NOT foam application!





- **This is NOT foam.**
- **This is an example of well frothed water.**
- **The viscosity is only slightly better than water out of a bucket.**





Another Example of foam or water.





This allows the foam to hang on vertical and upside down surfaces and slows the rate of drying.





Alliance

WING ROOT AREA

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Note:

The results in the following examples were attained using Zi-400 aircraft cleaner



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Why

Zi-400





It has been scientifically demonstrated that Zi-400

- ✓ **Meets/exceeds OEM specifications**
- ✓ **Performs well with foam application**
- ✓ **Prevents corrosion**
- ✓ **Arrests existing corrosion**





It has been scientifically demonstrated that Zi-400

- ✓ **Prevents corrosion**
- ✓ **Arrests existing corrosion**

Testing done by Professor Bruce Hinton

References:

DSTO Report 7/93

Deakin University Technical Report T-C0098-1

AASC Presentation 2016 - "Corrosion Prevention with Aircraft Washing Detergents"





Case 1. ~100 PAX commercial airliner.

Original procedure per wash:

27 Man Hours Labour
31 Litres of aircraft cleaner
Corrosion evident on airframe

Foam/Zi-400 wash Procedure

11 Man Hours Labour
8 Litres of Aircraft Cleaner
NIL further Corrosion on airframe





Case 2. 9 PAX GA aircraft.

Original procedure per wash:

2.5 Man Hours Labour

6 Litres of aircraft cleaner

Some Corrosion evident on airframe

Foam/Zi-400 wash Procedure

1.5 Man Hours Labour

3 Litres of Aircraft Cleaner

NIL Corrosion evident on airframe*

*** New wash procedure implemented after strip and repaint**





Case 3. 6 PAX Rotarywing.

Original procedure per wash:

2.25 Man Hours Labour

5 Litres of aircraft cleaner

Slight Corrosion evident on airframe

Foam/Zi-400 wash Procedure

1.5 Man Hours Labour

2 Litres of Aircraft Cleaner

NIL Corrosion evident on airframe*

*** New wash procedure implemented after strip and repaint**



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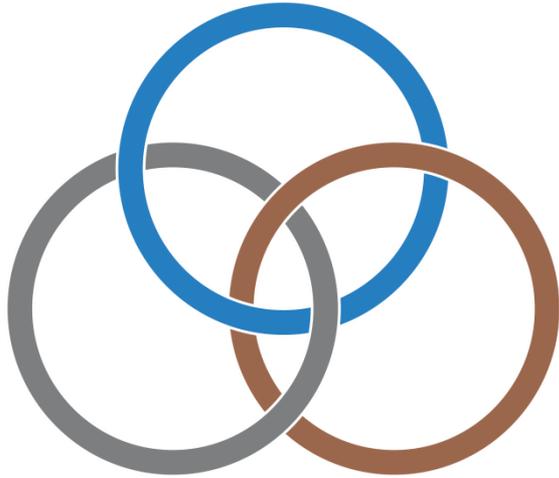
A summary of the method discussed:



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**Any
Questions?**

