

**Subject:** PEFS F3 Foam Mixing

**Product:** PEFS F3

**Parts:** PEFS F3 Foam Concentrate

The PEFS F3 foam concentrate is a highly viscous solution that does not readily mix with water. When the concentrate is added directly into water it will sink to the lowest point in any container or cylinder as shown in Figure 1;



*Figure 1 Un-mixed Foam*

## **Actions required**

Due to the physical properties of the foam concentrate the foam concentrate **must be thoroughly mixed into the water** after it has been added to the PEFS F3 cylinder, following the detailed instructions below and in the referenced materials.

The concentrate is to be mixed using the foam mixing tool that has been developed and tested to ensure it can be mixed within the PEFS F3 cylinders.

## **Filling and Mixing Instructions (Overview)**

1. Fill the cylinder to the correct water level.
2. Add the foam concentrate to the cylinder.
3. Insert the mixing tool into the cylinder neck ring and screw tight.
4. Connect a cordless drill to the mixing tool.
5. Mix the foam solution in the cylinder for **at least 3 minutes** using the drill set to low speed.

Please refer to the PEFS F3 Design and Maintenance manuals and the PEFS F3 Mixing Work Instruction WI-VS04 (included below) for detailed mixing instructions.

## Why is complete mixing important?

Once the foam concentrate is completely mixed with water, the pre-mixed foam solution has been tested to be stable for at least 12 months.

If the foam is not completely mixed there will be lumps of foam concentrate that can sit at the bottom of the cylinder as shown in Figure 2.



*Figure 2 Partially Mixed Foam*



*Figure 3 Mixed Foam*

A partially mixed foam solution with lumps in it can:

- Result in an un-even discharge performance out of each spray nozzle;
- More easily pick-up any foreign particles or contaminants in the discharge pipework which could cause blockages at the nozzles; and
- Due to the pressure balancing design of the LOP valve some of the foam solution can pass through the floating internal check valve in the piston assembly and enter into the actuation fittings and hoses. If lumps of viscous raw concentrate enters the valve, actuation fittings and hoses it may impair the functionality of the system – See Figure 4.



*Figure 4 Valve clogged with thick foam concentrate.*

**Effective Date:** Immediately

**Issue Date:** 24 September 2019

## Work Instruction – Vehicle Fire Suppression



WI Number & Revisions			
Approved Number:	WI-VS04	Approved by:	Craig Hafey
Work Instruction:	PEFS F3 Foam solution mixing tool		
AS5062-2016:	Section 10 & 11.5		
First Issue:	6 <sup>th</sup> March 2018		
Revision Date:	19 <sup>th</sup> September 2019		

General Information	
Frequency	As required
References	AS5062-2016, PEFS F3 Design Installation and Commissioning V1.1 Sep 2017, PEFS F3 Maintenance Manual V1.1 Sep 2017
SWMS Number	TBA
Equipment	Part # 137313 – PEFS F3 Mixing tool stainless steel Designed to be used via a cylinders neck ring and suitable for sizes: C106, C65 & C45.
Special Skills Required	Certificate II and relevant pre-engineered competency from Construction & Property Services training package.

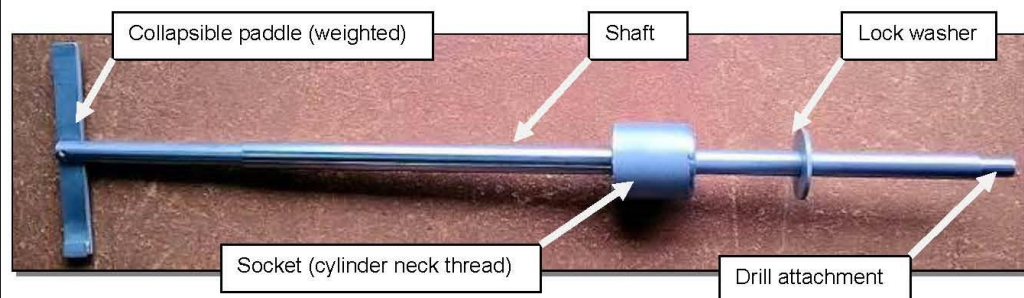
### Why:

The Chubb F3 concentrate is a high viscous liquid and must be mixed properly with water to ensure that the PEFS F3 fire suppression system will perform consistently.

**Note:** This document contains the instructions for using the mixing tool after a cylinder has been filled with water and foam concentrate. It is preferable to add the foam concentrate to the cylinder after it has been filled with water. It should be read in conjunction with the PEFS F3 Design, Installation & Commissioning Manual or the Maintenance manual when carrying out the task.

### How:

#### The Tool



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### Tasks

1. Inspect the socket thread for any foreign material, damage or wear.



Figure 1. Socket

2. Ensure that the pressure relief and filler port is sealed then Insert the mixing tool through the cylinders neck ring ensuring that the paddle is in the vertical position.



Figure 2. Paddle in the vertical position



Figure 3. Support and guide the tool



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3. The socket & lock washer stops the tool at the required depth. Screw the socket onto the neck ring (hand tight) and attach a drill to the shaft. Set the drill to low speed.



Figure 4. Socket screwed down

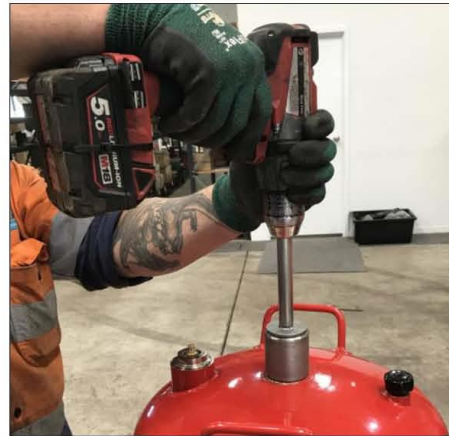


Figure 5. Drill attached

4. Operate the drill for no less than 3 minutes in the one direction to ensure that the foam concentrate is mixed properly. During rotation the paddle extends outwards and forces the solution to whirlpool and draw the concentrate up from the bottom. (Regardless of the depth on the nominated cylinder sizes)



Figure 6. Paddle rotating



Figure 7. Concentrate mixing with water

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5. After 3 minutes, remove the drill, unscrew the socket and carefully remove the mixing tool so as to not damage the neck ring, ensuring that the paddle is in the vertical position.



Figure 8. Opening Cylinder Valve

### Appendix A: Safety

The following safety equipment is considered mandatory for performing this task.

1. Approved gloves
2. Safety goggles.
3. Safety shoes
4. Protective clothing shall be of good fit and there shall be no loose flaps or strings, loose aprons, loose, torn, or ragged garments and neckties.

If this procedure is being carried out at a customers premise other items may be necessary according to the site conditions. Always conduct a risk assessment prior to commencing work to identify potential hazards.

WI Number & Revisions	
Revision Date:	19 <sup>th</sup> September 2019
Revision Explanation:	Updated images and removed reference to bucket method (redundant)