

**BACKGROUND** - Vehicle Fire Suppression systems have predominantly based on Foam as the firefighting agent. The discharge of firefighting foam in solution or concentrate has been shown to adversely affect health and the environment. Impacts can vary from short term toxicity to longer term bioaccumulation and persistence. In Australia, Qld and SA have introduced specific requirements for the use and disposal of firefighting foams. These regulations are being reviewed by the Federal Government to meet Australia’s international obligations and will be expanded to a national approach.

As a result, foams have changed composition in recent years. New formulations known as “Fluorine Free Foams (FFFs)” have been introduced as acceptable alternatives. Testing undertaken by NFPA of the firefighting capabilities of the FFFs was released in Jan 2020. The firefighting capabilities of the foams varied from manufacturer to manufacturer and the FFFs required between 2-7 times both the rates and the concentrations of the old formulation. FFFs are not a “drop in” replacement for AFFF. There are also some concerns about the chemical stability of FFFs, whether the concentrate will stay in solution at temperatures over 45°C, and whether mixing is required when concentrate is added to water to create the firefighting solution.

FirePro represents an alternative and cost-effective approach to Fire Suppression Systems for Vehicles.

	FirePro	Foam
<b>OPERATIONAL ISSUES</b>		
<b>Weight and Space</b>	All suppression components mounted inside the engine bay. No impact on the carrying capacity of the vehicle.	More space required, and significant weight differences. Cylinder mounted on Vehicle, with pipework to engine bay.
<b>Maintenance</b>	FirePro units have a certified life of 15 years from installation. No Pressure Test Required.	Foam Agent replaced annually. Pressure test on Cylinders required every 5 years (AS1851). Cylinder to be removed from vehicle.
	FirePro is: <ul style="list-style-type: none"> <li>NOT affected by these foam issues.</li> <li>Certified environmentally safe.</li> <li>Non Toxic</li> <li>Non Conductive</li> <li>CFC Free</li> </ul>	Chemical issues related to Foam, <ul style="list-style-type: none"> <li>FFFs not as capable as old formulations.</li> <li>Some questions about chemical stability.</li> <li>Foam system discharges need bunded area to capture all fluids including flush water.</li> <li>Foam (both AFFF and FFFs) including flush water is to be collected and destroyed. Some states require licensed destruction.</li> </ul>
	FirePro Aerosol Generators and other components to be inspected. Function test of system using FirePro Test Module.	Valves, piping, brackets, hydraulic hoses and nozzles to be removed, inspected, cleaned and replaced. Clear passage test using Nitrogen.
<b>Operations</b>	FirePro is electrically monitored – operators will always be aware of any system faults.	Systems have limited monitoring functions. The piping or valves may be faulty and the operator unaware – NOT operational
	FirePro has separate components acting together as a system – failure of a component will not cause failure of the system. If electrical system fails FirePro will operate at 300°C.	Systems require all components to be operational or can create cascading system failure. Where cylinders loose pressure the system is not operational



	FirePro	Foam
<b>OPERATION COSTS</b>		
<b>6 Mthly Service</b>	Approx Service Time 30 min (∞)	Approx Service Time 1 hour (∞)
<b>Annual Service</b>	Approx Service Time 45 min (∞) Replacement of Agent NOT Required.	Approx Service Time 2 hours (∞) Replacement of Foam Agent, foam & flush water capture and destruction (\$6/Lit). Change O-rings, piston kit & sundries.
<b>5 Yearly Service</b>	Approx Service Time 60 min (∞) No Pressure Test Requirement.	Approx Time 2 hours (∞) Cylinder Pressure Test, or exchange unit, capture and destruction of foam & flush water (\$6/Lit). Change O-rings and piston kit
<b>Reduced Downtime</b>	Service time result in approx. 50% lower downtime of equipment.	Service Times result in much higher downtimes for equipment.
<b>Life Costs of System</b>	Maintenance Costs as a percentage of Initial Cost of System 5 years 40% (∞) 10 years 75% (∞) 15 years 110% (∞)	Maintenance Costs as a percentage of Initial Cost of System 5 years 65% (∞) 5 years 135% (∞) 5 years 200% (∞)
<b>INSTALLATION</b>		
<b>Install Process</b>	Normally easier to install as components are discrete units - connected by wiring loom based on color coded circuits, using deutsch plugs.	Longer installation times and higher installation costs – piping, brackets, nozzles
<b>Application</b>	FirePro is available in various sizes. Suitable for all sizes of risk.	Restrictions in certain applications due to nature of product and impractical installation
<b>Safety Rating</b>	Firepro is SIL Rated	No Rating available

(∞) Times are estimates and relate to the actual service time. Costs relate to work completed on Normal time (not Overtime), and include sundry costs for service, but exclude and replacement components. These will vary from machine to machine, and no allowance made for travel time to site, inductions or waiting time for access to vehicles or machines.

