

June 2025

Fogmaker News

Technical and market-related information for our partners

New product for BEV

Page 6

FOGMAKER

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Contents

Editorial page - Lars Alrutz 3

New Product for BEV 4

Coming Soon: Assembly Station 7

Climate Calculation for 2024..... 8

Technical Notes 10

New Faces at Fogmaker..... 12

Fogmaker in the News 14

Indian Mining Delegation 29

Spring Trade Shows..... 30

Summer Hours 32

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Växjö, Sweden, June 2025.



Lars Alrutz, CEO
Fogmaker International AB.

A word from the CEO

We have finally secured a last batch of liquid 1831 which will ease the transition to ECO-1 in the market. If you have needs, contact our Market Support or your Sales Representative for further information. The sudden impact of the availability of the product on the market has been a hassle, so it feels good to have more breathing space.

It is still volatile on the market, but we feel that the largest impact on the economy is centered to Europe. Outside the EU the business is much more expansive. We continue to strengthen our brand in several segments such as Material Handling and Mining & Tunneling, mainly through frequent activities like trade-shows and adverts/editorials.

Even if the shorter perspective has been up and down lately, we feel that we have a great long-term strategy to follow. That strategy means higher penetration on appointed markets and focus on the eight main

segments of vehicles and machines. We now also have a more distinct system configuration for BEVs with the new sectional valve that we hope can be a great success on the market.

The organization has been strengthened with more sales-oriented personnel to better support You as Partners as well as the OEMs that we strive to start co-operations with.

We look forward to getting some time off during the short Swedish summer at the HQ, but you should know that many of us are available or at least can forward your requests to a colleague during the coming weeks. Fogmaker never closes completely, so feel free to contact us and we will do our best to support.

Lasse

Fogmaker's New FSS Technology for BEV: Closing the Safety Gap

The Fogmaker Sectioning Deployment Valve offers targeted fire suppression for all critical compartments of your customer's electric vehicle, ensuring optimal safety during worst-case scenarios.

While significant efforts have been made to reduce the likelihood of battery fires, the "What If" question remains at the forefront of everyone's mind, particularly in the public transport industry using battery electric buses (BEB).

In the RATP BEB fire on April 4th, 2022, the driver successfully evacuated 14 passengers within 20–30 seconds. However, the bus was fully engulfed in flames just 30–45 seconds after the first indication of fire. Similarly, in the second RATP fire on April 29th, 2022, it took just 17 seconds from initial smoke to full vehicle ignition, although this time there were no passengers on board. These are just a couple of numerous examples over recent years.

Evacuation times for buses globally have been studied extensively, with data indicating that *it can take anywhere from 1.5 to 2.5 minutes to evacuate a bus*. This varies with bus size—from an 8-meter school bus to a 12-meter double-decker. The introduction of BEV coaches, often operating at highway speeds and possibly carrying sleeping passengers, increases the challenge further.

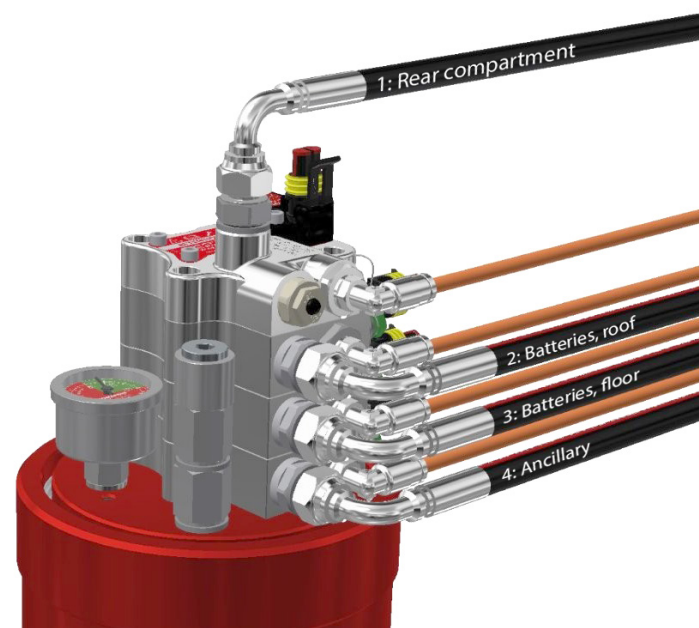
In the event of a thermal runaway—whether in a city, a tunnel, or on a bridge—every second counts. Passengers with reduced mobility, or those unfamiliar with emergency procedures, may require more time. The critical issue is the narrow time window between the first signs of fire and the vehicle becoming fully engulfed in flames. The challenge is clear: how can it be ensured the vehicle is evacuated before it's too late?

This is where Fogmaker provides a vital solution—providing time for a safe evacuation before conditions escalate beyond control.

Introducing the Fogmaker Sectioning Deployment Valve

The new Fogmaker system, using the Sectioning Deployment Valve, addresses this challenge by covering up to four deployment zones. It automatically detects a fire and suppresses it directly within the affected battery compartment—buying crucial time when it's needed most.

For example, with 11.5 L of suppression agent and 20-25 nozzles covering the defined risk areas, deployed in a 1 cubic meter compartment through 6 nozzles, the system offers 2 minutes of sustained suppression. Adding another 11.5 L increases this to 4 minutes—a valuable window in any evacuation scenario.



Why This Is a Game-Changer for Public Transport

Electric buses are rapidly becoming the backbone of modern public transport. With Fogmaker's new system, they can now be equipped with an intelligent, responsive fire suppression solution that directly addresses the greatest safety concern of the BEV era. It bridges the critical gap between fire onset and passenger evacuation—finally delivering the protection the industry has been waiting for.

Also...

We should not forget that the fire in BEB often starts outside the battery, which means that our technology could completely extinguish a fire and prevent it from reaching the battery packs.

Many times the BEB fire occurred during charging, leading to immense material loss. We could delay such thermal event and provide time for depot sprinklers to deploy or for fire brigade to arrive.

Insurers are notably hesitant to BEB, also strengthening the need for our product as a last resort reactive fire protection.

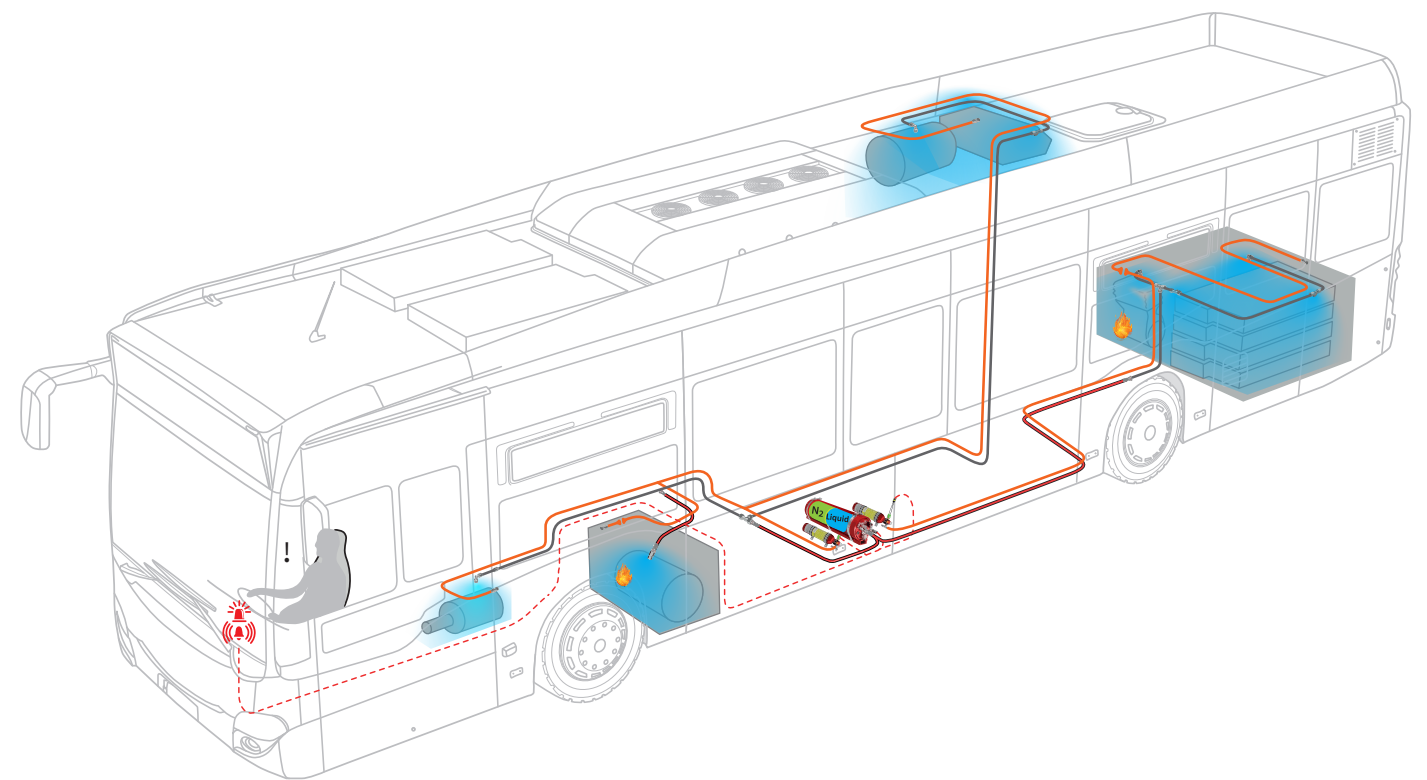
RISE is planning for a full scale BEB fire test, applying AFSS as part of the project, and Fogmaker was number one to sign up.

Key Information

- Developed fully in-house by Fogmaker International's R&D department, maintaining the simplicity and all proven benefits of the original Fogmaker fire suppression system
- First revealed to distributors at the Fogmaker Partner Days 2024
- Showcased at UITP Exhibition, Hamburg, June 2025
- Official press release planned for September 2025
- Formal launch at Busworld, Brussels, October 4–9, 2025
- Trial installations completed
- Part numbers available for 7.5 and 11.5 L systems

Contact us for more information and to discuss how the Sectioning Deployment Valve can improve the safety of your customer's electric vehicle fleet.

//Carl Zandler



✓ Comprehensive Protection for Electric Buses

Protect all critical compartments with a single, high-pressure water-based mist FSS (105 bar).

✓ Targeted Suppression in up to Four Compartments

Deploy suppression agent precisely where the fire is detected, using up to four section valves.

✓ One System – Multiple Risk Zones

Integrate up to four independently controlled valves on the same piston accumulator.

✓ Extended Cooling Discharge for Safe Evacuation

Up to 2 minutes of agent discharge for improved passenger and driver safety during evacuation.

✓ Ideal for electric drivetrains, battery compartments, and inverters

✓ Directs discharge only where needed

General info

Fogmaker fire suppression system with high pressure water mist, protects vehicles and other enclosed spaces against fire hazards.

Fogmakers piston accumulator is filled with suppression liquid and nitrogen gas and pressurized to 100-105 bar.

The **section valve** adds the function to fit multiple detection and distribution systems to one cylinder (PA). The available models come in two different lengths and diameters, se image. All models function in the same way.

PA with sectioning valve is ideal for vehicles where several compartments need to be protected, (most electrical vehicles are designed in this way), this lowers the cost as less liquid is needed.

System design

The **section valve** is activated hydro-pneumatically and a distribution system fitted to this valve (with up to 14 nozzles) releases suppression liquid to that specific protected volume. Up to 4 unique systems may be installed to each Piston accumulator.

For example, without section valve(s), one 11,5L PA or both a 7,5L + 4L is needed to protect Comp1 (6,5m³) and Comp2 (1,8m³). With a section valve "2-way", you only need one 7,5lit PA with 2 valves.*

!

Risk analysis shall be done for each valve/compartment alone, not together.

Technical specifications

Model ----->	7,5L			11,5L		
Number of section valves:	2-way	3-way	4-way	2-way	3-way	4-way
Piston Acc. Part no.	1072-02-230	1072-02-330	1072-02-430	11122-02-230	11122-02-330	11122-02-430
Height (mm)	829	853	877	939	963	987
Outer diameter (mm)	ø151			ø178		
Volume (lit)	7,4			11,5		
Max. no of nozzles	28	42	56	40	60	80
Max protected volume m³	13	19,5	26	25	37,5	50
Initial gas pressure (bar)	16.5					
Pressure (bar)	100-105 at 20°C					
Suppression liquid Eco 1 -35°C	Water, Frost protection					
Functional temperature	-30°C to 65°C					



Fire suppression

Fogmakers suppression liquid is released from the piston accumulator without electrical supply and is spread inside the fire protected volume through a corresponding distribution system. Each valve may be connected to a maximum of 14m pipe and 2m hose.

The liquid consists of water, frost protection and a foam additive which cools and suppresses the fire as well as prevents re-ignition. High pressure water mist attacks all three sides of the fire triangle.

One 7,5L PA can protect up to (6,5 x 4) total: 26m³ * compartment volume of a vehicle!

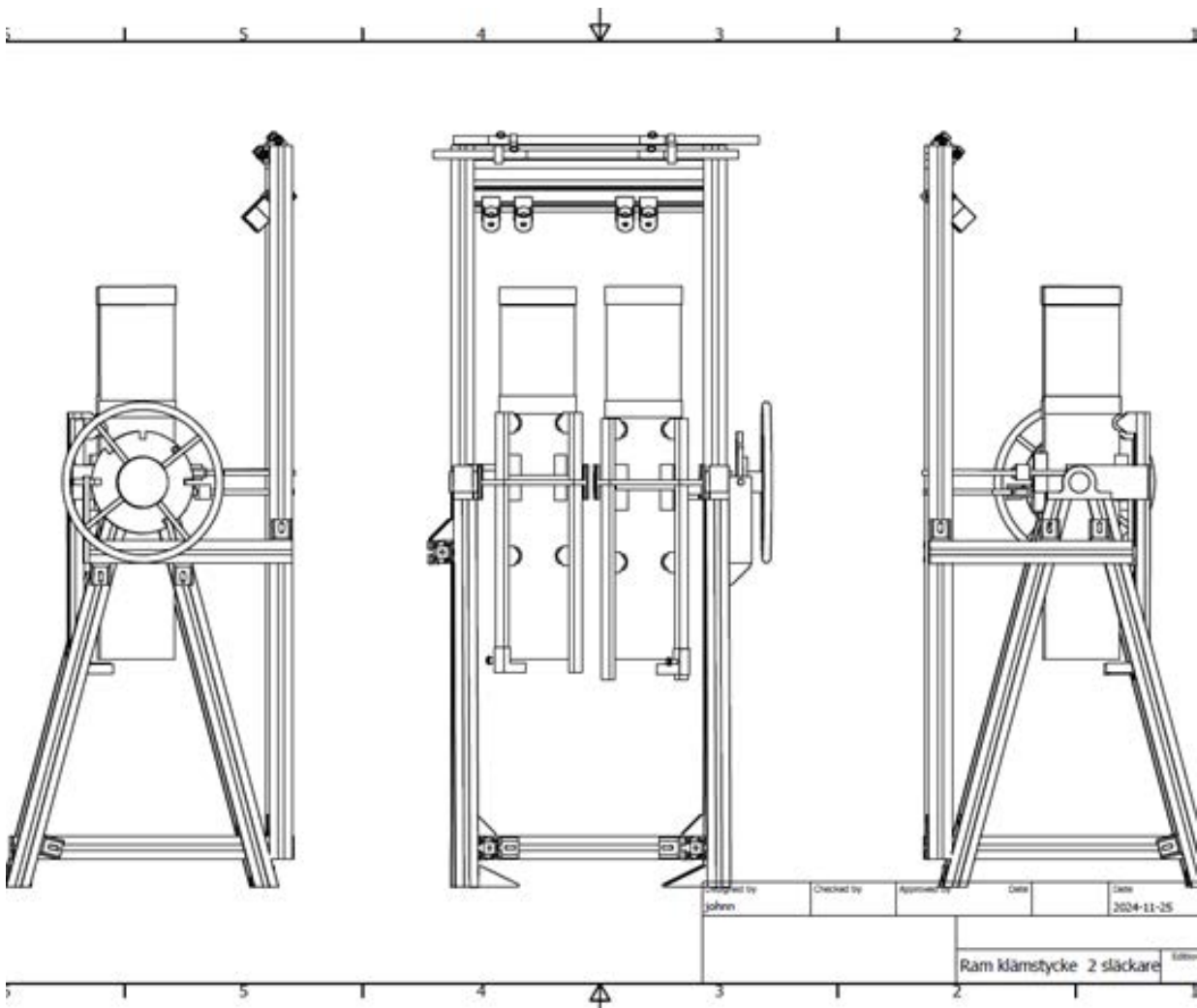
**assessments and dimensioning done acc. to R107*

Coming Soon: Assembly Station

Partners have requested an assembly station to make handling piston accumulators easier and more ergonomic. The new workstation is almost ready and more information and pricing will be available from September 2025.

Key features include:

- Convenient way to handle 2 or 4 PAs at the same time
- Rotating cradle makes it possible to work on the PAs in different positions
- Able to handle all sizes of cylinders and double piston accumulators
- Ergonomic working height



Climate Calculation for 2024

The climate calculation for 2024 is done. Fogmaker continues to do well with a positive growth, and this affects emissions. The climate footprint has increased with 10%. The largest impact (82%) comes from purchased materials, particularly aluminium. Reducing emissions while increasing production is a challenge, but also an opportunity to develop the business.

This year's report only includes Fogmaker International. Fogmaker Finland Oy, Fogmaker Brasil LTDA, and Fogmaker SEA have not been calculated for 2024.

Reporting is done according to the GHG protocol - a global standard for reporting greenhouse gas emissions. The reporting includes CO₂, CH₄, N₂O, SF₆, HFCs and PFCs. CO₂e means carbon dioxide equivalents and

denotes all the greenhouse gases converted to the climate impact that CO₂ has.

To facilitate reporting, the emissions are divided into three categories called scope 1, 2 and 3. It is mandatory to report emissions within scope 1 and 2, but optional to report emissions within scope 3. The purpose of the scope is to clarify from which part of the value chain the emissions come from and what measures are needed to reduce them.

- Scope 1 - direct greenhouse gas emissions, i.e. emissions that the organization itself is responsible for and can influence.
- Scope 2 - indirect emissions in the form of purchased energy from external suppliers, for example: electricity and district heating.
- Scope 3 - indirect emissions in addition to purchased energy (for example: materials, transport and other external suppliers)

Principles of the GHG Protocol

The reporting must give a relevant picture of the organization's greenhouse gas emissions. The reporting must also be comprehensive and include all emissions that fit the criteria. Any deviations must be clarified in the report.

Data must be collected and reported in a consistent manner to facilitate comparisons. Any changes in the method must be described in the report.

Everything must be described in the report, even activities that currently do not meet the criteria. No activities, sources, methods, or the like may be left out of the report.

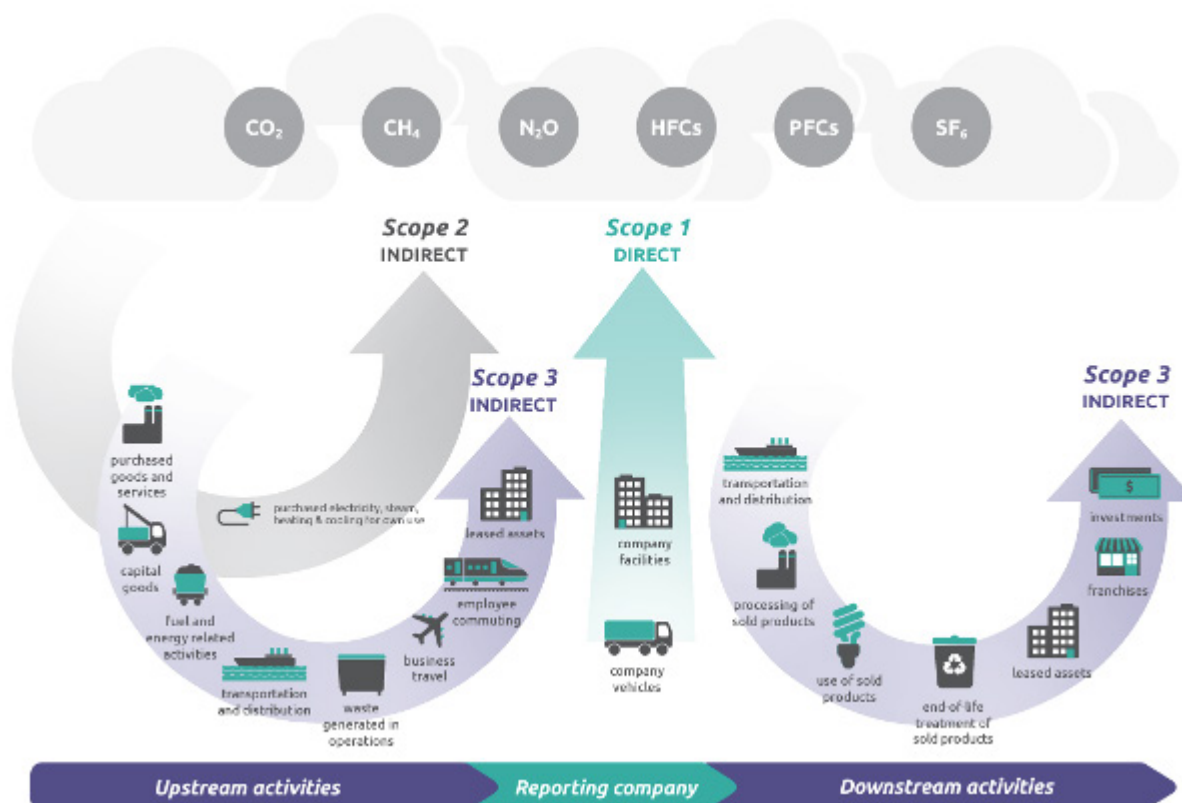
The content of the report must be current, and the greenhouse gas emissions must agree with the real emissions to the greatest extent possible.

Fogmaker's Goals

Fogmaker's sustainability goals include:

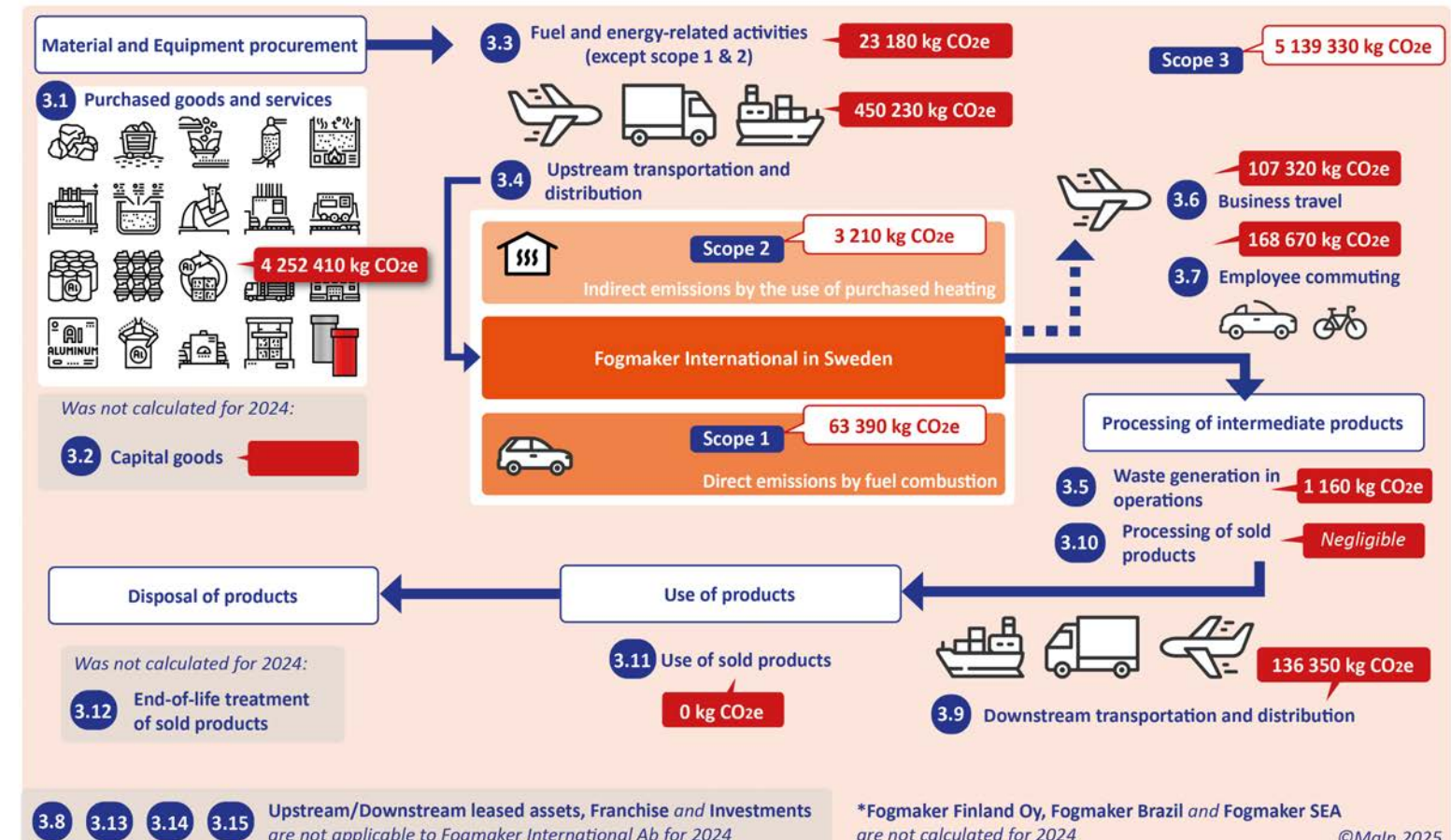
- 0% harmful substances in the suppression liquid by the end of 2025
- Emissions in Scope 1 (direct greenhouse gas emissions) reduced by 10% per year to 0 in 2030
- Emissions in Scope 3 (indirect emissions) reduced by 5% per year to 0 in 2045.

Figure [1.1] Overview of GHG Protocol scopes and emissions across the value chain



FOGMAKER INTERNATIONAL AB Climate calculation for 2024* - Infographics

5 205 920 kg CO₂e



Technical Notes

Important Reminder: Novec will be Discontinued

Important reminder: Novec™ 1230 from 3M™ will be discontinued by 2025-12-31 and this means that Fogmaker will not offer any products starting with PN 1007...or 1008... after this date. This is in line with our decision to phase out all uses of potentially harmful substances and materials.



Novec
Brand

There are alternative fire suppression methods that could replace Novec™ 1230 in most applications. Fogmaker Novec™-system used in diesel heater compartments can be replaced with Fogmaker MiniFSS Eco 1.

There are cases where Fogmaker will not be able to supply a replacement product. For these applications, Fogmaker is looking into different options. Contact your account manager to discuss possible solutions for your situation.

If you need Novec™ 1230 for the aftermarket, don't forget to place orders this year to ensure delivery.

Help us Improve!

How many fires does the Fogmaker system put out?

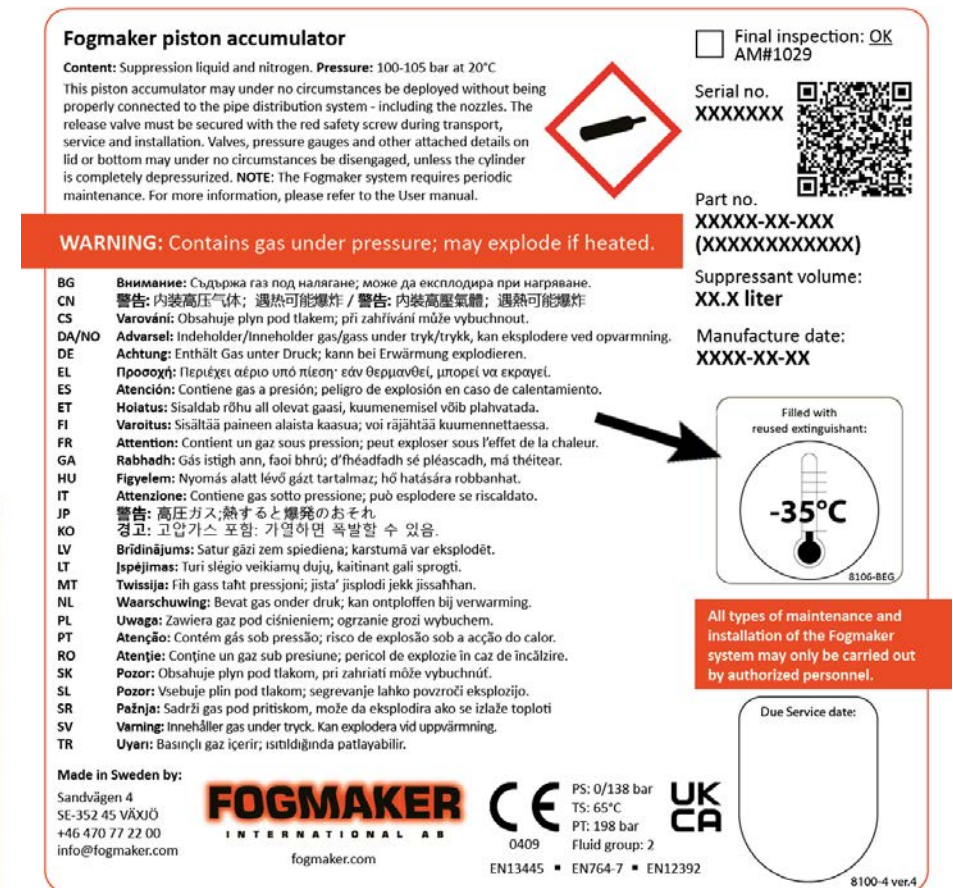
Today, this is a question we can't answer. We don't know. Please help us by registering any thermal incidents you hear about where a Fogmaker Fire Suppression System is fitted. All incidents are interesting, whether we put the fire out or not.

Receiving this information helps us get better. It helps us improve our product and our processes, and gives valuable information about the performance of the Fogmaker system - information that can be used to enhance the Fogmaker system compared to our competitors.

All partners have the possibility to register thermal incidents in the Partner Portal.

New Label

There is a new label, 8106-BEG, to be used for piston accumulators that are filled with re-used 1831 liquid. Mount it over the anti-freeze symbol on the serial number label, see example images.



New Languages Available

The "driver's information" label is now available in more languages.

It is currently available in Swedish, English, German, Dutch, Italian, French, Spanish, Polish, Finnish, Norwegian, Turkish, Danish, Arabic and Brazilian Portuguese.



New Faces at Fogmaker

Panfah Treelao

Hello everyone! I am Panfah. I joined Fogmaker in February 2025 as an Office Manager & Market Support at Fogmaker's representative office in Bangkok, Thailand.

I'm genuinely touched by the warm welcome and honored to be part of such an amazing sales team at Fogmaker. Expanding into Southeast Asia not only strengthens the international presence but also demonstrates the vision, innovation, and dedication to protecting lives and assets worldwide. I am very impressed by continued commitment to safety, quality, and sustainability with Eco 1 – 100% PFAS Free.

Prior to joining Fogmaker, I worked for AkzoNobel, chemical manufacturing as PMO assistant manager, the integrated supply chain team in South Asia Pacific. I interfaced with Hub & Site manager of 17 manufacturing sites (Pakistan, Australia, India, Vietnam, Indonesia, Malaysia, Singapore & Thailand). My key responsibility was to monitor key KPI & follow up on gap closure for each plant.

Before that, I worked in various roles (coconut & packaging buyer, production planner) at Harmless Harvest, acquired by Danone Group where I started my professional journey.

When I face a challenge, I am bold to go for it. I try to consistently develop to become a better version of myself. I am passionate about collaboration, helping drive our mission to deliver high-quality fire suppression systems across Southeast Asia Market & beyond.



Robert Tengvall

Hi everyone,

My name is Robert Tengvall, and I am a new Key Account Manager here at Fogmaker since May 1 this year.

My area of responsibility will primarily be focused on our customers in Asia and the Middle East, but also to some extent in Europe, as well as our domestic customers, such as Volvo and Scania.

I have extensive experience in sales and have, throughout my career, mainly worked within the automotive market. Before joining Fogmaker, I most recently worked as a Key Account Manager in the construction industry, responsible for the Swedish market. Prior to that, I spent 17 years working for an American company that produces auto parts, where I worked with their resellers in the Nordic market.

As a person, I'm very interested in sports and tried quite a few different ones in my youth—but these days, it's mostly a round of golf or a ride through the forest on my mountain bike.

I look forward to becoming part of the Fogmaker family and contributing to continued growth together with all of you.



<<< Fogmaker in the news - Port Gear>>>

<<< Fogmaker in the news - Port Gear>>>

SMALL = BIG INVESTMENT

by Fredrik Rönqvist, Key Account Manager & Segment Manager – Material Handling, Fogmaker International

Ports bustle with activity from material handling equipment. An increasing number of that machinery is battery-electric, which removes many hot surfaces and liquid fuels that pose a fire hazard in machines with a combustion engine; yet other fire initiators, like heaters and hydraulics, are still there. Understandably, many worry about fires in the battery packs. Extinguishing a battery fire is very difficult: the chemical reactions happen quickly, the battery casing makes it very difficult to reach the blaze, and to make matters worse, a fire in a lithium-ion battery creates its own oxygen, making it, more or less, impossible to choke.

The good news is that it's rare for a fire to start inside a battery. Research presented at the Fires in Vehicles – FIVE 2023 conference shows that 50-60% of electric vehicle fires never involve the battery. Batteries may catch fire because of thermal runaway, but this is, too, uncommon. Collision or an external fire are the two main reasons for a battery to start burning.

Whereas no fire suppression system can protect against collisions, it can protect against external fires reaching the battery pack. An efficient fire suppression system should target fire initiators to prevent or delay an external fire from affecting the battery; it can also reduce flames from the battery in the unlikely event of it being on fire.

Myths, truths, and knowledge gaps

Recommendations for fire suppression for electrical vehicles and machines used

to focus on dry or gaseous agents. This has changed over the last 10 years, and water-mist is now considered the best option, as it has a better cooling effect than other suppressants.

But wait a minute here! Isn't electricity and water an absolute no-no? After all, we've all seen this or that movie where someone is electrocuted by a radio or blow dryer falling into a tub. Electric vehicles and machines are, however, built to withstand humidity, rain, and road splash. They have high ingress protection for any high-voltage parts. A water-mist system like Fogmaker's will not penetrate components with an IP classification of IP66 or higher.

But what if the IP enclosure is damaged? It is every vehicle or machine owner's responsibility to make sure the equipment is safe. Broken parts should be replaced as soon as possible. A fire could damage the IP

protection, too, but in that case, the problem is bigger than what can be caused by water.

Many also worry about water in an electric compartment leading to people being electrocuted. Fortunately, this is very unlikely because of several reasons. The components being protected aren't in the same compartment as people. You need to be part of the circuit to get current through your body, and that means you need to make physical contact with both the negative and positive terminals (birds don't get fried by sitting on power lines exactly because they're not part of the closed circuit). Moreover, the gear's battery management system has many safety features to protect from dangerous currents.

Ready to spring into action – now & in the PFAS-free future

Fogmaker's fire suppression system works with a water-based mist, where



PHOTOS: FOGMAKER

each single drop of water is split into circa 8,000 droplets. Practically, that means that Fogmaker has a great cooling effect, and this is imperative when dealing with fires in electric vehicles. Fogmaker has decades of experience in detecting and suppressing fires in engine rooms and other enclosed spaces, and the system will provide the best possible fire protection performance if there is an emergency. The system is tailored to each type, make, model, and energy source since they all have different risk areas.

The system developed by us springs into action when the compartment reaches a certain temperature. At this point, a fine water-based mist fills the compartment, displaces oxygen, and chokes the fire. Fogmaker's pressurised cylinders ensure the system will work regardless of position – even if the vehicle has toppled upside down – and our patented nozzles divide each drop of water into micro-droplets that have a great ability to choke the fire. Water-based mists also cool an area better than all other methods on the market. Cooling

the area is important to prevent a blaze from flaring up again, and, depending on the application, Fogmaker systems are designed to keep cooling somewhere between 35 and 90 seconds.

Already in 2023, Fogmaker introduced Eco 1, a fluid that's 100% free of per- and polyfluoroalkyl substances (PFAS). Eco 1 is GreenScreen Certified® at the silver level, meaning a third party has verified all substances in the fluid from an environmental perspective. There is currently a proposal to ban 10,000 different PFAS chemicals, and Fogmaker is ready for the future by completely phasing out its liquids containing PFAS now.

We also work side-by-side with the Port Equipment Manufacturing Association (PEMA) and many of the OEMs in the

material handling community to create guidelines and safety recommendations for the future (Fogmaker is proud to share that it co-authored PEMA's *Fire Detection and Suppression for Mobile Port Equipment* white paper, which is available for free on the Association's website).

Safety & peace of mind

A fire suppression system from Fogmaker is a small investment for a big enhancement of safety (and peace of mind). With a pronounced focus on safety in the industry, new electric technologies emerging for material handling, and increased demands for productivity and reduction of downtime, Fogmaker is here to support you in your quest for a safe and productive work environment in material handling. ■

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Since 1995, the Växjö-headquartered Fogmaker International has been developing, manufacturing, and marketing fire suppression systems with high-pressure water-based mist for engine compartments. Fogmaker's water-based mist chokes fires quickly and keeps cooling the area to prevent flare-ups. Now 100% PFAS-free with our new liquid, Fogmaker Eco 1! Visit fogmaker.com to discover more.

<<< Fogmaker in the news - Dagens Infrastruktur >>>

DAGENS INFRASTRUKTUR // THIS ARTICLE IS PRESENTED BY FOGMAKER



In mines and tunnels, you must be able to trust all components of a fire suppression system, because a full-blown fire in these environments has such major consequences.

CERTIFIED FIRE SUPPRESSION in tunnels and mines

Fogmaker's fire suppression system for machinery and heavy vehicles uses a PFAS-free liquid and attacks all three components that affect a fire – heat, oxygen, and fuel. It is the most tested and certified system in the world and one of only a few suppression systems certified according to the American Factory Mutual (FM 5970).

– LAST YEAR WE certified our system according to Factory Mutual (FM 5970). About twelve tests are carried out in tough environments where the system must suppress fire under different conditions, says Mario Flores who is Key Account Manager and responsible for the Construction Equipment and Mining segment at Fogmaker.

According to the FM website "HDME (Heavy Duty Mobile Equipment) includes

a large range of sizes and complexity. The smallest examples may carry a single operator and have an open cockpit. The largest include mining equipment that may have several floors, a multiplicity of hazards, and multiple occupants. FM 5970 requires the examination of complete systems: either storage and delivery, detection and control, or combined detection, control, storage, and delivery".

– We have been working hard for ten years to get this certification and we are one of few manufacturers of fire suppression systems for the tunnel and mining industry world-wide to have it.

The tests and the approval were carried out with Fogmaker's new Eco 1 liquid, which is 100 percent PFAS-free and GreenScreen™ certified at silver level.

It shows that it is possible to combine

fire protection with durability.

Mario Flores tells us that the company's fire suppression system is the most tested and certified in the world. It is also approved and certified in countries such as Australia, Sweden, and others.

– This means the name Fogmaker is widely recognized today. In the past, it was common for people in the industry to ask what we did when we met them. Now we don't need to explain anymore.

SUPPRESSES AND COOLS

Fire depends on three components to start and keep burning – fuel, oxygen and heat. Fogmaker's system attacks all three. When the temperature in the engine compartment reaches a temperature of about 170 degrees, a hydropneumatic detector hose breaks and the pressure in the hose decreases.

When the pressure decreases, a valve on a piston accumulator is activated. It pushes out the suppressant with high pressure through special nozzles in the engine compartment, and this creates a dense fog of micro-droplets.

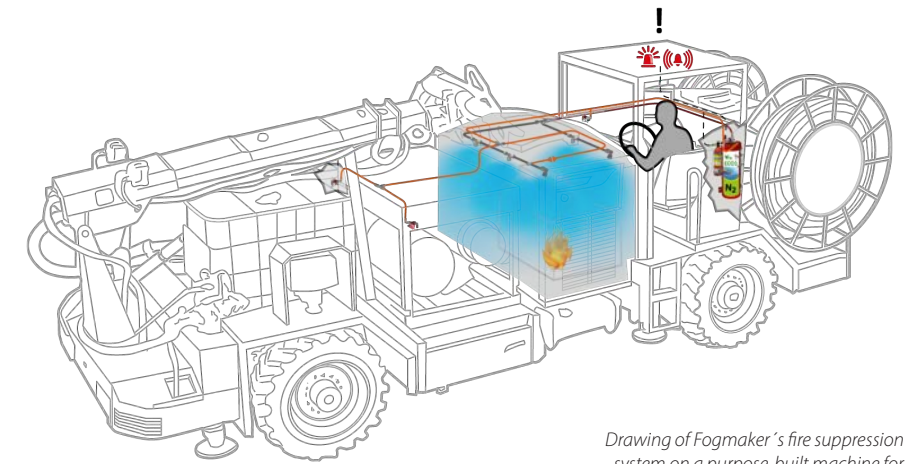
– The water droplets evaporate in contact with heat and expands. One liter of extinguishing fluid becomes 1,700 liters of water mist, which extinguishes the fire and pushes the oxygen out of the engine compartment, explains Mario Flores.

PREVENTS RE-IGNITION

The water mist is sprayed out for at least 45 seconds and more if necessary. The long activation time cools the engine compart-

<<< Fogmaker in the news - Dagens Infrastruktur >>>

DAGENS INFRASTRUKTUR // THIS ARTICLE IS PRESENTED BY FOGMAKER



Drawing of Fogmaker's fire suppression system on a purpose-built machine for scaling applications.

ment and lowers the temperature by 700 degrees in ten seconds.

– With powder-based extinguishing systems, the powder is sprayed out in a puff that extinguishes the fire. But it's still very hot in the engine compartment, which means it can easily re-ignite. With our system, the suppressant absorbs that heat and create steam that suffocates the fire, and forms a film that prevents the fire from re-igniting.

With Fogmaker's fire suppression system, it is easy to clean the engine compartment after a fire has been put out. Just rinse clean with water. With a powder extinguishing system there is a risk of corrosion on machines and components because extinguishing powders are corrosive.

CONTINUED DEVELOPMENT

Although Fogmaker's fire suppression system is fundamentally the same as when it was launched 30 years ago, the system is constantly evolving. For example, the nozzles that push out the extinguishing fluid during a fire have been developed for different flows and strengths.

In Europe, the pressure in the system may not exceed 100 bar. In the USA, the equivalent of the Swedish Transport Administration requires that the pressure in extinguishing systems must not exceed 65 bar.

– Our development department put a lot of work into developing nozzles that work with our two systems, 65 bar and 100 bar. These too were tested to gain FM approval. Some parts of the system had to be able to open and close several hundred times without problem. It feels good that the tests are so rigorous. In mines and tunnels, you must be able to trust all components of a fire suppression system, because a full-blown fire in these environments has such major consequences, emphasizes Mario Flores.

Another difference between different

markets is that in the US, customers often want more electronics in the system. For that reason, Fogmaker has developed a special electrical system with an alarm panel.

– In the US, they want more information, for example about incidents that do not lead to a fire. But it is important to point out that our system is not dependent on electronics. If the electrical system should not work for any reason, the fire extinguishing system will still trigger.

Companies in the mining sector are showing great interest in Fogmaker's solution. Kascco LTD carries out loading and transport for mining companies in Zambia. The company has several machines, including excavators from 25 to 250 tons and dumpers and mining trucks from 40 to 100 tons. Kascco recently switched to Fogmaker's fire suppression system on many of its machines.

FOGMAKER AT WTC 2025

Fogmaker will be present at the World Tunnel Congress 2025, which will be held in Stockholm 9–15 May. There you can meet Matthias Karlsson (Key Account Manager for mining and tunneling in the Nordic market) who can tell you about Fogmaker's fire suppression systems, security, and safety when working with machines and heavy vehicles and the technology behind it.

– That Fogmaker is ranked highly by the most demanding certification bodies worldwide shows that our fire suppression system is top class, and we are proud of that. But the best certification is that the users feel secure in knowing that the system works, says Mario Flores. ■

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– The best certification is that the users feel secure in knowing that the system works, says Mario Flores, responsible for the Construction Equipment and Mining segment at Fogmaker.

<<< Fogmaker in the news - Container Management>>>

The future is fast tracked and Fogmaker takes on the challenge

Modern port business and container handling have evolved far from the heavy lifts of the longshoremen. Today's port business is an industry where significant technological progress has been made, and the sector constantly seeks new ways to optimise.

Fires in a port remain a constant threat, and with the ever-present heavy machinery in a modern port we have also come to see that sometimes fires start in these machines. The good news is that the industry is increasingly waking up to these risks and seeks to equip machinery with vehicle fire suppression systems.

As a supplier of these systems, Fogmaker must take steps to keep up with the high speed of innovation and changes.

For this reason, not just Fogmaker, as the market leader in Europe, but also our competitors, are working hard to innovate. From Fogmaker's side we see three important steps for future proofing:

- 1) Develop as eco-friendly products as possible
- 2) Follow the Zero Emission trend wherever it may take us
- 3) Adapt a sustainable method of production

To improve on point one, we are constantly seeking new materials and suppliers to minimise our impact on the environment. The advent of Fogmaker's new PFAS free and eco-friendly suppressant liquid, ECO 1, is one such innovation. Fogmaker has had ECO 1 on selected markets for some years, but it is now being launched globally and we are phasing out the old suppressants. ECO 1 is Green Screen Certified at the silver level, and this means that a third party has approved all substances in it from a health and environmental aspect.

More and more ports and operators are investing in electrical vehicles and machines, and the risks of a fire are different from those in combustion engine vehicles. We are looking into the best way to combat these fires, and high-pressure water mist with extended cooling is a preferred solution. Many of the producers of EVs have decided to side with us in this new challenge. Electric Vehicles for the masses is a relatively new occurrence in society and designs differ. As such, new different risks are introduced. It is notoriously difficult to suppress fires in battery packs and a whole new way of doing risk analysis has been introduced. There is far less statistics on battery fires than in combustion engines, but one thing is clear and that is that long activation time (= more cooling) is of the essence. What little statistics there is also tell us that the problem is not the batteries – fires are more likely to start anywhere but the batteries. Water mist works on components with IP66 or higher.

Simultaneously, Fogmaker is working very hard to re-

duce energy consumption in its production process, to reduce the amount of travelling, and an array of other measures to keep our CO₂ footprint down.

It goes without saying that ports and operators dislike unscheduled downtime and the machines and fire suppression systems must be gold standard. Fogmaker is the most tested and certified vehicle fire suppression system in the world.

Fredrik Rönqvist, key account manager at Fogmaker International AB



Top: SSA Marine Mexico
Bottom: ICTSI Mexico

<<< Fogmaker in the news - International Fire Buyer>>>

FIRE SUPPRESSION FOR *ELECTRIC* VEHICLES AND MACHINES

FOGMAKER
INTERNATIONAL AB

As increased environmental concerns move vehicles and machines away from traditional diesel engines, battery electric solutions change the reality of fire suppression

Many worry about fires in the battery packs and it is true that extinguishing a battery fire is very difficult. The chemical reactions happen quickly, and the battery casing makes it very difficult to reach the blaze.

The good news is, it's rare that a fire starts inside a battery and research presented at the 2023 FIVE conference shows 50-60% of electric vehicle fires never involve the battery at all. Batteries may catch fire because of thermal runaway, but this is rare. There are mainly two reasons for a battery to start burning: collision or an external fire.

No fire suppression system can protect against collisions, but it can protect against external fires reaching the battery pack. A good fire suppression system should target fire initiators to prevent or delay an external fire from affecting the battery, and can reduce flames from the battery in the unlikely event of it being on fire.



MYTHS, TRUTHS, AND KNOWLEDGE-GAPS

Recommendations for fire suppression for electrical vehicles and machines used to focus on dry or gaseous agents. This has changed over the last ten years and water is now considered the best option. Water-mist has a better cooling effect than other suppressants.

But, electricity and water is a no-no, right? We've all seen the movie where someone is electrocuted by a radio or blow dryer falling into a tub.

Electric vehicles and machines are built to withstand humidity, rain, and road splash. They have a high ingress protection for any high voltage parts. A water-mist system like Fogmaker's will not penetrate components with an IP-classification of IP66 or higher.

Many still worry about water in an electric compartment leading to people being electrocuted. Fortunately, this is very unlikely. Even besides being constructed to withstand water, the components being protected aren't in the same compartment as people. You need to be part of the circuit to get current through your body, and that means you need to make physical contact with both the negative and positive terminals. As an example, birds can sit on power lines because they're not part of the closed circuit.

Last but not least, the Battery Management System has many safety features to protect from dangerous currents.

THE FOGMAKER SYSTEM

Fogmaker's fire suppression system works with a water-based mist where each single drop of water is split into thousands of tiny droplets. Practically, that means that Fogmaker has a great cooling effect, which is imperative when dealing with fires in electric vehicles. The system is tailored to each type, make, model, and energy source since they all have different risk areas.

The Fogmaker system deploys when the compartment reaches a certain temperature. At this point, the water-based mist fills the compartment, displaces oxygen, and chokes the fire. Fogmaker's pressurized cylinders ensure the system will work regardless of position – even if the vehicle has toppled upside down – and the systems are designed to keep cooling somewhere between 35 and 90 seconds.

<<< Fogmaker in the news - Move It Magazine>>>

<<< Fogmaker in the news - Move It Magazine>>>



In the areas of construction, tunneling, and mining, the risk of fire cannot be ignored. Equipment works in unfavorable conditions, often surrounded by flammable material, high-pressure fuel, and extreme heat. If a fire occurs, it may be life-threatening, cause considerable asset loss, and lead to costly downtime. Recognizing these risks, Fogmaker has established itself as one of the global leaders in fire suppression technology, providing a high-pressure water mist system that offers unparalleled protection for vehicles and machinery in these sectors.

HOW FOGMAKER WORKS

Fogmaker's fire suppression system identifies possible engine fires and suppresses them in their earliest stages, preventing escalation and re-ignition. Unlike a traditional system that uses powder or foam, Fogmaker uses a high-pressure water mist that promotes rapid fire suppression by cooling the fire and displacing oxygen while suppressing fuel that's burning. In cases of engine fire, the system takes a tripartite approach to suppression by injecting the water mist, which removes heat, pushes out oxygen, and suppresses fuel at the same time. The system's triple-action approach ensures that fires are rapidly contained before they can spread, making it the preferred solution for over 300,000 vehicles worldwide.

One of the key advantages of the Fogmaker system is its ability to function effectively in enclosed and hard-to-reach areas, such as engine compartments or hydraulic systems. Fogmaker has a discharge time of up to 90 seconds, which is much longer than other systems, and an impressive cooling capacity, which reduces the potential risk of re-ignition and gives operators time to evacuate.

FIRE RISKS IN CONSTRUCTION, TUNNELING, AND MINING

Heavy machinery in these industries often contains large volumes of diesel fuel and hydraulic oil, both of which are highly flammable. In construction, dust and debris accumulation around engine compartments can act as additional fire accelerants. Similarly, equipment in underground tunneling and mining works in confined, high-risk settings, where a fire may go undetected and ultimately have devastating consequences.

With the increasing adoption of electric and hybrid machinery, additional fire hazards arise. Thermal runaway in a lithium ion battery can lead to intense and difficult-to-control fires, while fuel cell technology presents gas explosive hazards if ignition occurs. According to research provided at the 2023 FIVE Conference, 50–60% of all electric vehicle (EV) fires do not occur in the battery, but rather in other vehicle components, underscoring the need for a holistic fire suppression approach.

Fogmaker addresses these evolving challenges by ensuring that fires are contained before they can reach critical components such as batteries or fuel cells. The system provides cooling and suffocation for the fire, while providing additional margin of safety for operators working in high-hazard zones.

TAILORED FIRE PROTECTION FOR EVERY MACHINE

Understanding that no two machines or applications present the same fire hazard, Fogmaker customizes each fire suppression system to suit specific vehicle models and energy sources. The system is fully automated, requiring no electrical power for activation, making it a reliable

solution even in power-failure scenarios. It offers flexibility with different piston accumulator sizes, easy installation with minimal space requirements, and both automatic and manual activation options. The system also features continuous monitoring for low pressure, activation status, and fire alarms, with an optional automatic engine shutdown as an added safety measure. The extended cooling time further prevents re-ignition, ensuring total protection.

CERTIFIED SAFETY AND ENVIRONMENTAL RESPONSIBILITY

With more than thirty years of experience, Fogmaker has built a reputation for providing fire suppression systems of high quality that are subject to comprehensive testing and certification. The system has been approved by multiple international safety associations including IATF-16949, and undergoes stringent quality control to ensure reliability in the most demanding environments. Due to increasing environmental concerns and company sustainability goals, Fogmaker has introduced the Ecol Fluid, a 100% PFAS-free and GreenScreen Certified solution. Fogmaker's Ecol PFAS-free fire suppression system is one of the few high-pressure, liquid-based systems holding the FM 5970 certification. Additionally, SPCR 199, UL, AS 5062, and SPCR 197 certifications make the Fogmaker system one of the most rigorously tested and certified globally.

Mario Flores Dahlström, Region Manager LATAM and Segment Manager for Mining, Tunneling, and Construction Equipment at Fogmaker, stated: "What does this mean for the industry? The FM 5970 Certification guarantees that the system adheres to the highest international fire suppression standards for heavy-duty mobile equipment. SPCR 199 and UL Certifications confirm its performance under extreme conditions, including vibration, shock, and corrosion. SPCR 197 distinguishes it as the only system with an independently approved non-electric detection mechanism, en-



suring an additional layer of reliability. AS5062 Compliance aligns it with the rigorous standards for mining and tunnel equipment in Australia. Each of these certifications reflects extensive testing to ensure the system operates effectively in real-world scenarios. These certifications are not merely formalities—they are the result of exhaustive validation in environments designed to replicate actual fire situations."

For businesses in high-risk areas where safety and continuous operating function are important, the need to invest in an effective fire suppression system is more than a precaution, it is a necessity. The Fogmaker system provides a reliable and effective solution that safeguards lives, protects assets, and ensures continuity of the businesses where it is used.



<<< Fogmaker in the news - Move It Magazine>>>


**MOVE IT
INTERVIEW**

KEEPING FIRE AT BAY: AN INTERVIEW WITH FREDRIK RONNOVIST OF FOGMAKER

Move It Magazine sat down with Fredrik Rönqvist, Key Account Manager and Segment Manager: Material Handling at Fogmaker International AB, a manufacturer of fire suppression systems for engine compartments and enclosed spaces. With a stronghold in the bus market and an expanding presence in construction, mining, and material handling, Fogmaker's history and strategic evolution reveal how innovation driven by personal necessity can turn into a global safety solution.

<<< Fogmaker in the news - Move It Magazine>>>

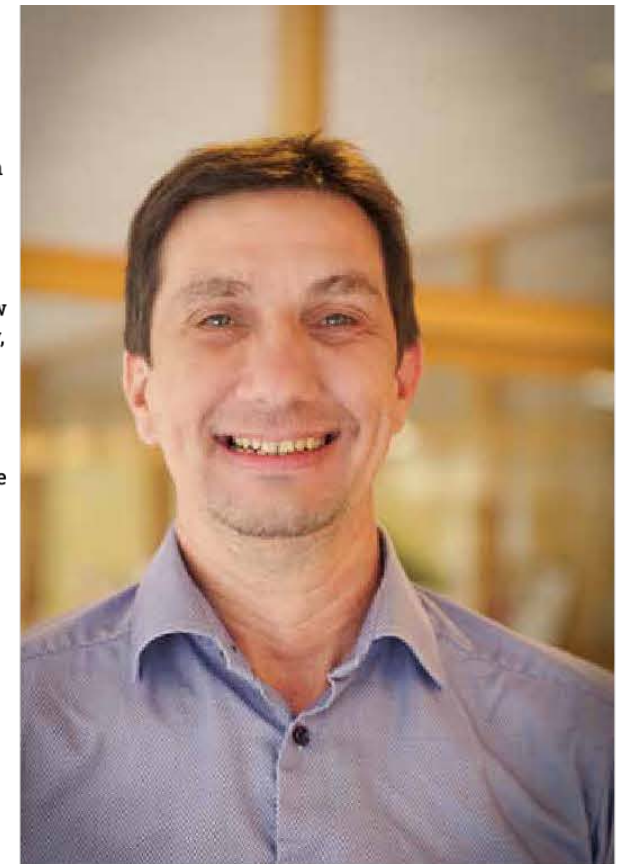
MOVE IT MAGAZINE: Can you tell us how Fogmaker got started? What's the story behind the company?

FREDRIK RÖNNQVIST: Sure! I wasn't there in the very beginning, but I've heard the stories. Fogmaker was born from a passion project. The founder, whose name I believe was Kennet—we'll need to verify that—was involved in motorsports as a hobby. He raced cars and, naturally, had a fire suppression system installed in his vehicle. However, he found the existing system lacking in performance and reliability. So, he began experimenting with developing a better system for his own use.

He succeeded in building something that worked far better, and soon others in the racing community took notice. What started as a personal improvement evolved into a product with commercial potential. Eventually, the idea grew into a business. The first systems were tailored specifically for the racing industry, but over time, the scope expanded significantly.

One of the key figures in the company's growth was Andreas, who became the first official employee and later the owner. Kennet saw it more as a hobby, but Andreas saw real potential and took a stake in the company. He eventually became the sole owner and led the company into what we consider its modern era, starting in 1995. This year marks our 30th anniversary, which is quite a milestone.

In 2022, Andreas sold 70% of the company to an



investment group called Dacke Industri, 8% to our management team, and retained 22% for himself. He remains on the board and will sell the remaining shares over the next five years. But the early years were challenging—we sold only a handful of systems each year. The roots of Fogmaker are firmly planted in motorsports, but the growth came through careful evolution and opportunity.

MOVE IT MAGAZINE:

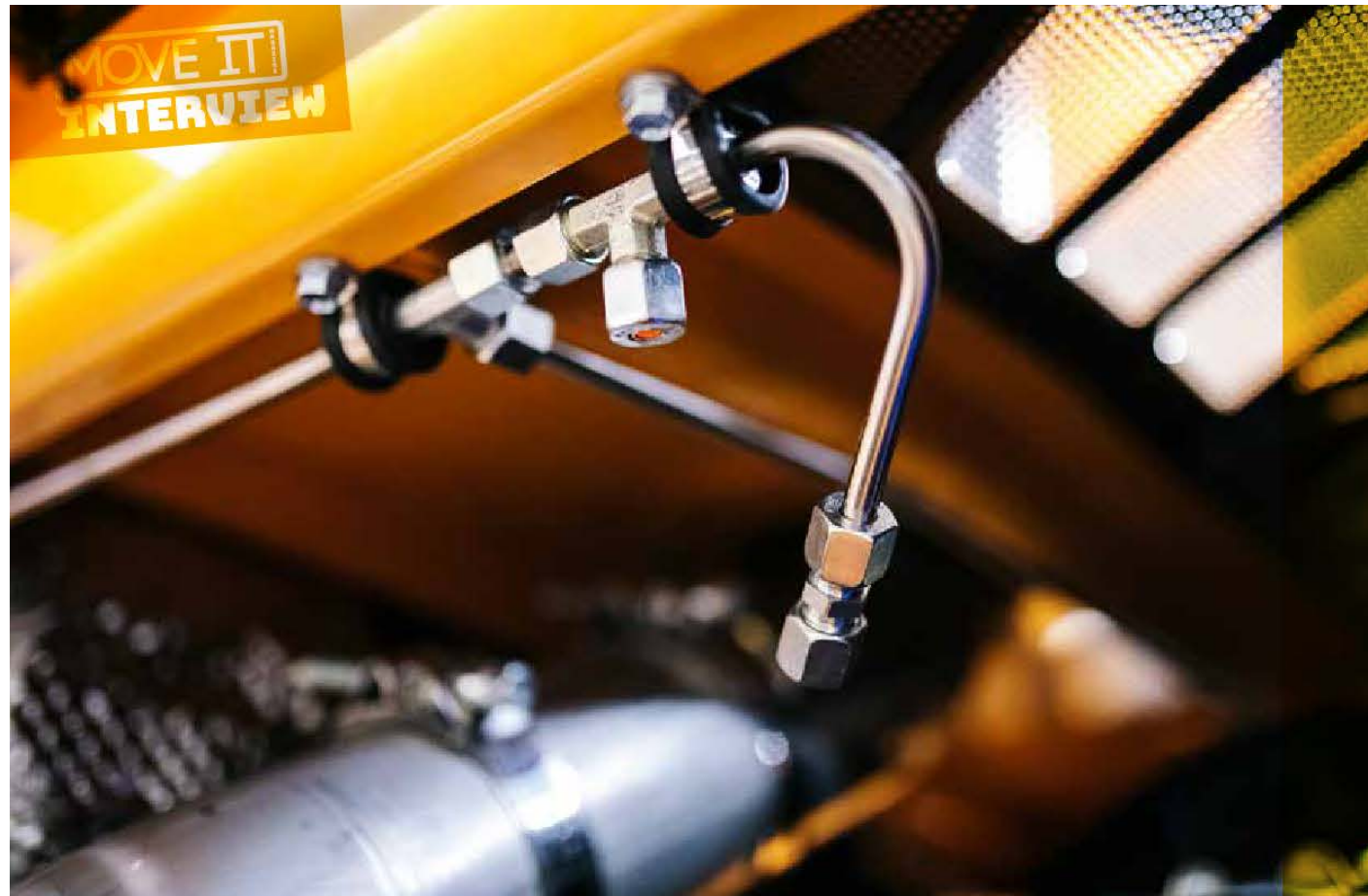
From race cars to industrial equipment—how did Fogmaker expand into sectors like material handling, construction, and mining?

FREDRIK RÖNNQVIST:

The pivotal moment came when regulations changed in the bus industry. A rule was introduced mandating that any bus with more than 22 seats had to be equipped with a fire suppression system. That drove huge demand and really propelled Fogmaker into growth mode.

Even today, around 70% of our business is still related to buses. But having such a large dependency on one sector is risky, so we started looking at other industries where fire suppression is critical. We naturally moved into construction equipment, agriculture, and material handling.

Each of these sectors has specific fire risks. For instance, in construction, machines working in tunnels or enclosed spaces are often not allowed without a fire suppression system. In agriculture, machines like combine harvesters can catch fire—especially during harvesting season. That's devastating because those machines are expensive, only used for a short period annually, and hard to replace quickly.



MOVE IT MAGAZINE: Let's focus on material handling. What are the specific risks in this segment compared to other industries like mining or construction?

FREDRIK RÖNNQVIST: The machines across sectors are often similar—diesel engines, high-pressure hydraulics, and lots of heat sources. But in material handling, especially in ports, the environment brings additional risks.

For example, terminal tractors go in and out of ships. If one of them catches fire inside the belly of a vessel, the consequences could be catastrophic—not just for the equipment, but for the ship and cargo. Then you have other hazards in ports, like fuel silos, coal piles, or wood chips, all of which are highly flammable.

Plus, some port equipment—like ship-to-shore cranes or mobile harbor cranes—is extremely expensive and hard to replace. If one of these goes down due to fire, you don't just lose a machine; you potentially lose 25% of your terminal capacity. And unlike wheel loaders, these machines can't

be rented or replaced on short notice. So fire suppression isn't just about safety—it's also about minimizing operational downtime.

MOVE IT MAGAZINE: Are your systems customized to specific types of equipment like forklifts, reach stackers, or automated warehouse machines?

FREDRIK RÖNNQVIST: Yes—and no. A reach stacker, whether made by Konecranes, Hyster, Kalmar, or Sany, will have similar characteristics. But each machine can differ in size, configuration, and features. That's why we always start with a risk analysis. We assess the specific risks tied to that machine—its layout, components, and operating environment—and build a system around those factors.

So while the core technology might be the same, each system is tailored to ensure optimal protection for that specific machine.

MOVE IT MAGAZINE: What about electric or hybrid machinery? Are the systems the same, or do they require new approaches?

FREDRIK RÖNNQVIST: The basic system—water-based mist—remains the same, and research supports its effectiveness even in electric vehicles. But the risk profile is very different.

With combustion engines, we focus on hot parts, fuel systems, and hydraulic hoses. In electric machinery, the concerns shift to battery packs, converters, and connectors. The aim is to suppress a fire before it reaches the battery. If a lithium-ion battery is compromised, the fire is extremely difficult—if not impossible—to extinguish.

So we focus on early suppression and cooling, giving people time to evacuate and minimizing the spread. Interestingly, our data shows that 60–70% of fires in electric vehicles don't start in the battery. They originate from connectors or short circuits, which we can manage more easily.

MOVE IT MAGAZINE: How do regulations or insurance requirements impact fire suppression in various sectors?

FREDRIK RÖNNQVIST: They definitely do, though it's more about geography than industry. For example, the U.S. follows regulations from the Department of Transportation (DOT). In Sweden, it's regulated by the SBF, which is essentially a group of insurance companies that set best practices.

Some sectors have specific standards—like mining, construction, and public transportation—but the big differences come from country to country. That said, we're seeing increa-

sing discussion about creating standards for fire suppression in trucks, particularly in Europe. As for weather—people sometimes think extreme climates might influence fire risk, but honestly, weather isn't a major factor. The bigger issues are system design, regulation, and operational environment.

MOVE IT MAGAZINE: Can you name any customers or projects in the material handling space?

FREDRIK RÖNNQVIST: Unfortunately, no. We have non-disclosure agreements (NDAs) with all our clients, so we can't disclose names. But I can say that we work with all the major OEMs in this sector—either directly at the factory level or through end-user installations.

If you visit major ports around the world, there's a good chance you'll see our systems installed in equipment there. While we can't name them, I assure you they're among the biggest names in the industry.

MOVE IT MAGAZINE: Without naming names, do you have any examples where your system helped prevent major incidents?

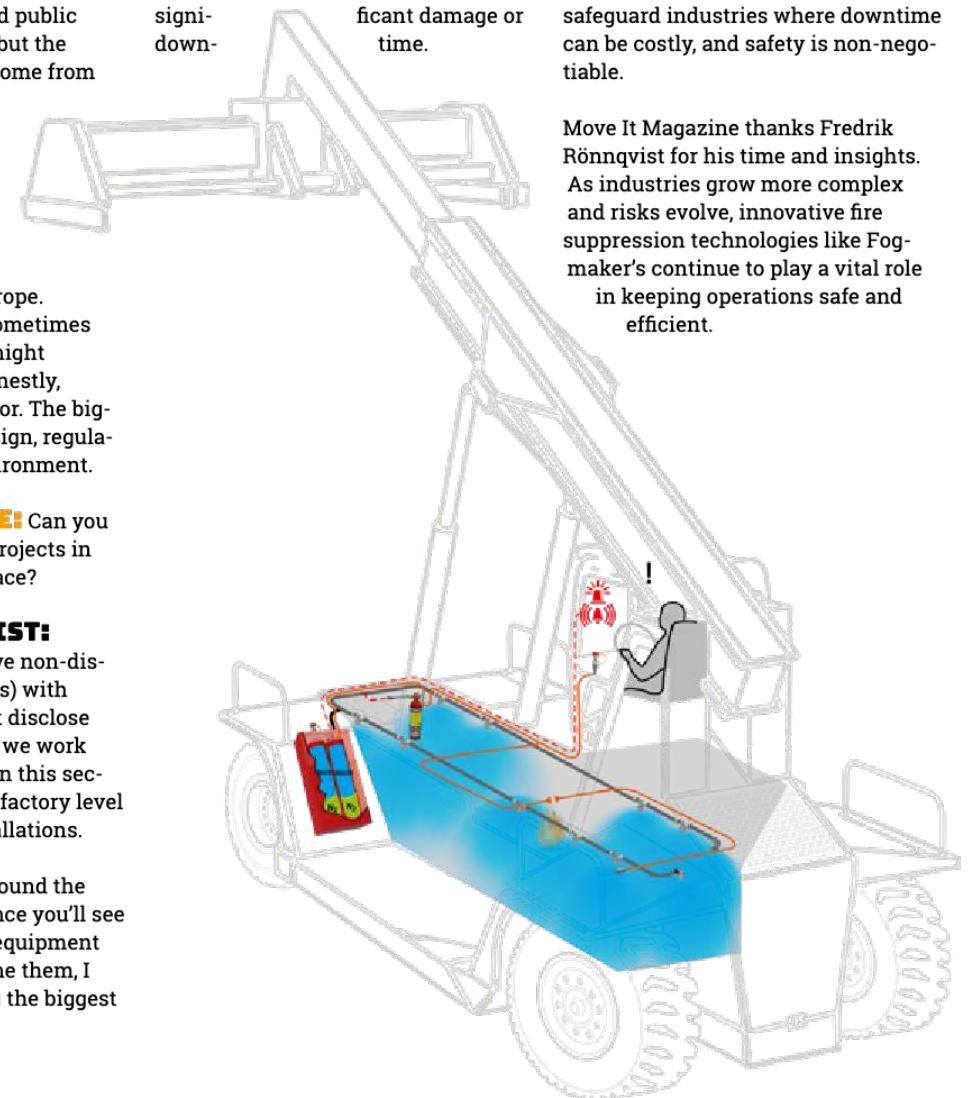
Fredrik Rönqvist: Absolutely. One example that stands out is a mobile harbor crane that experienced two separate fires—our system extinguished both. Another case, not in material handling but worth mentioning, involved a forestry machine that caught fire three times—and again, our system put out every single one. There are many instances in container handling where our suppression systems have prevented full-scale disasters. These are high-risk environments, and we've been able to contain fires and avoid significant damage or time.

MOVE IT MAGAZINE: Fredrik, this has been incredibly insightful. Any final thoughts you'd like to share with our readers in the logistics, construction, and material handling sectors?

FREDRIK RÖNNQVIST: Just that fire suppression is more than a regulatory checkbox—it's an investment in continuity, safety, and long-term savings. Whether you're operating a forklift or a multimillion-euro crane, protecting that equipment—and the people around it—matters.

And with increasing electrification, system complexity, and environmental concerns, having the right suppression solution in place is more critical than ever. We're proud to help safeguard industries where downtime can be costly, and safety is non-negotiable.

Move It Magazine thanks Fredrik Rönqvist for his time and insights. As industries grow more complex and risks evolve, innovative fire suppression technologies like Fogmaker's continue to play a vital role in keeping operations safe and efficient.



HIGH VOLTAGE, HIGH STAKES

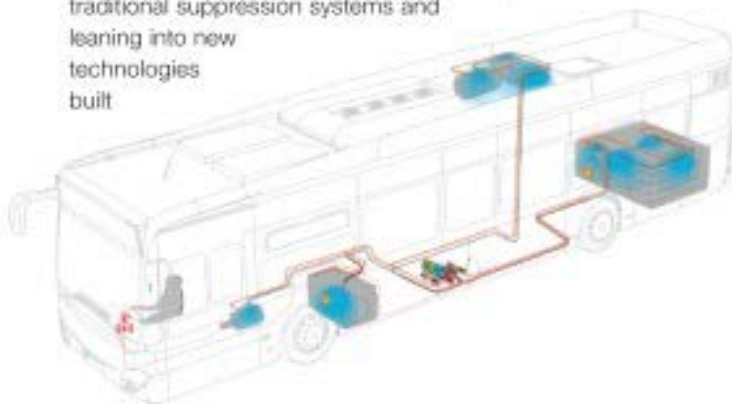
Fire risks in electric vehicles demand new suppression strategies. Fogmaker explores how high-pressure water mist systems offer effective, sustainable protection against EV fires.

As electric vehicles (EVs) gain traction across diverse industries — from public transportation and logistics to mining and construction — the complexity of fire safety in high-voltage environments is becoming increasingly apparent. Unlike traditional combustion engines, EVs present unique risks that demand a new generation of suppression systems. From thermal runaway in battery packs to difficult-to-access ignition sources and the potential for re-ignition, conventional suppression technologies often fall short. This shift in fire risk dynamics calls for a strategic response tailored to the structure and operational nuances of modern electric vehicles.

Fogmaker International, a longstanding innovator in fire suppression for enclosed engine spaces, offers insight into the technologies addressing these challenges. By combining automatic activation, effective cooling, and PFAS-free environmental compliance, high-pressure water mist systems are emerging as a resilient and forward-looking solution. This article explores the limitations of legacy systems and highlights the critical considerations for EV fire suppression in today's evolving mobility landscape.

AT THE FOREFRONT

As electric vehicles (EVs) continue to accelerate across global markets — from public transport and construction to mining and agriculture — the fire safety challenges they bring are evolving just as fast. For fire safety professionals, adapting to this high-voltage reality means rethinking traditional suppression systems and leaning into new technologies built



"At Fogmaker International, we've been at the forefront of developing fire suppression solutions for complex, enclosed engine environments since 1995"

for today's mobility landscape.

At Fogmaker International, we've been at the forefront of developing fire suppression solutions for complex, enclosed engine environments since 1995. Now, as battery-electric and hybrid powertrains become the new normal, our work is more important than ever.

UNDERSTANDING FIRE RISKS IN ELECTRIC VEHICLES

While EVs are generally safe, their fire risk profile is vastly different from that of combustion engines. Fires in electric vehicles are often caused by collisions or fires that start in a more traditional place than the battery pack, but once the batteries are affected, the temperature can climb rapidly, igniting adjacent cells and releasing toxic gases. Research has shown that a majority of the fires in BEVs do not originate or even have a link to the battery itself, but it is also known that the severity when a fire gets to the battery is high.

Compounding the challenge, battery fires can reignite long after appearing extinguished, are difficult to suppress because the battery is shielded, and located in compact spaces that are tough to access. They are also in general self-sustainable when it comes to oxygen supply, for the fire to continue, so choking is not an option. Some types of electric vehicles also have batteries in more than one place.

These factors demand a high-performance suppression system — one that activates automatically, suppresses quickly, cools efficiently, and functions independently of the vehicle's power supply.

TRADITIONAL SUPPRESSION SYSTEMS FALL SHORT

Conventional fire suppression systems, especially those based on dry chemical powders or foams, were never designed to handle the unique behavior of battery fires. While they may smother flames in a traditional engine bay, they:

- Struggle to cool the heat and allow fires to flare back up

- Leave residues that damage equipment and sensitive electronics
- Often rely on electrical systems to function

EV fires demand cooling and containment.

WHY HIGH-PRESSURE WATER MIST IS THE ANSWER

Fogmaker's suppression system uses high-pressure water-based mist, delivered through finely tuned nozzles. When activated, it rapidly fills the protected compartment with micro droplets that together have a big area and can assimilate more heat than regular water drops.

This approach offers several unique advantages:

- Quick flame knockdown — displaces oxygen to suffocate fire
- Rapid cooling — absorbs large amounts of heat, critical for preventing re-ignition
- Minimal water use — a small amount goes a long way due to the high-pressure mist

- Easy to clean up
- Safe for electronics (IP > 66)
- Always active — works independently of vehicle power or position (even when the ignition is off or the vehicle is upside down)

Whether protecting battery compartments, power electronics, or auxiliary units, high-pressure water mist provides fast, reliable, and environmentally conscious suppression.

LEADING THE WAY WITH PFAS-FREE SOLUTIONS

Another key evolution in fire suppression is the industry-wide shift away from PFAS — a group of synthetic "forever chemicals" long used in firefighting foams and additives. These substances pose significant risks to human health and the environment and are now being regulated or banned globally.

Fogmaker has proudly developed and launched a 100% PFAS-free suppression liquid: Eco 1 that is GreenScreen™ certified at the silver level. 🌱

COVER STORY

This breakthrough delivers:

- High performance with smaller quantities
- Full compliance with new environmental standards
- Certification through rigorous third-party fire testing

Eco 1 has passed fire tests globally - matching or exceeding the effectiveness of Fogmaker's previous liquid - with zero compromise on safety. Sustainability can't be an add-on; it's a core part of engineering future-ready fire protection.

WHAT FIRE SAFETY PROFESSIONALS SHOULD KNOW

If you're involved in specifying or assessing fire suppression systems for electric vehicles, there are a few key questions to keep in mind:

1. Does the system activate automatically, even without power?
2. Can it suppress flames and cool hotspots?
3. Is it safe for high-voltage environments and electronics?
4. Does it require costly clean-up?
5. Is the liquid PFAS-free and compliant with upcoming regulations?
6. Can the system be adapted to the tight spaces and modular design of EV platforms?

Choosing the right suppression system can be the difference between a minor incident and a catastrophic loss. High-pressure water mist systems are uniquely positioned to meet all these criteria, making them a strong choice for the EV era.

REAL-WORLD READINESS: FROM BUSES TO HEAVY EQUIPMENT

Fogmaker has equipped buses and other vehicles with our suppression systems for the past 30 years, working closely with OEMs and operators to ensure seamless integration and dependable protection. From urban transit vehicles to underground mining equipment, our solutions are battle-tested in some of the world's toughest environments.

Every application is unique, and we offer modular design and global service support.

READY FOR THE FUTURE

The shift to electric mobility is not slowing down, and neither is the demand for smarter, cleaner fire protection. At Fogmaker, we believe safety, sustainability, and performance must go hand in hand.

As regulations tighten and public expectations rise, fire safety professionals play a crucial role in shaping safer transport systems. Our mission is to support you with certified, effective, and future-proof solutions, built on decades of experience and a deep commitment to innovation.



When it comes to EVs, the voltage may be silent - but the stakes are loud and clear.

ABOUT FOGMAKER INTERNATIONAL

Fogmaker high pressure water mist is very efficient for extinguishing fire in multiple areas. The water mist gives an immediate choking and quickly cooling effect. Unique for the water mist is the fact that it fills the entire fire-protected area and access fire beds outside the direct spreading area of the nozzles. The water mist's ability to quickly extinguish the fire limits the amount of damage in the engine compartment. With hydro pneumatic fire detection the suppression system works with the same effect even when the electricity supply is disconnected. The system is also positioned independently (if the installation is laying on the side or up-side-down). Fire re-ignition is prevented by the adding of a smaller amount of foam to the water mist which lies like a choking blanket over the entire motor compartment. The extinguishing fluid that is generated from the water mist is environmentally friendly and it is easy to wash away. **FB**

Indian Mining Delegation Cooperating with Business Sweden

Fogmaker International has a good relationship with Business Sweden, an organization whose mission is helping Swedish companies expand globally, as well as helping international companies invest in Sweden. We were delighted to be asked to present about Fire Suppression for Mining when a delegation visited from India.

Fredrik Rönqvist and Panfah Treelao from Fogmaker went to Stockholm to present and the group showed great interest. Hopefully, this will lead to new and improved opportunities for protecting machinery in mines in India.



From left to right: Ms. Malin Siberg, CEO Guideline geo, Mr. Hemant Pratap Singh, Executive Officer Confederation of Indian Industry, Unknown, Mr. Vijay Chauhan, Head - Mines Baphimali Bauxite Mine, Utkal Alumina International Limited, Mr. Jyothish Jacob Thelappilly, Project Manager - India and South Asia Region Business Sweden, Mr. Edward Murray, Founder & Board Member Greeniron, Mr. Johan Carlsson, Country Manager at Opsio, Fredrik Rönqvist, Representative Business Sweden India, Mr. Sanjit Kumar Adhya, OMQ Tata Steel Limited, Panfah Treelao

Spring Trade Shows

Bauma in Munich

In April, Fogmaker International AB exhibited at Bauma in Munich. This is the world's leading trade show for construction, building material and mining machines, construction vehicles, and construction equipment.

Bauma is a long show and we had two teams taking turns along with partners visiting and helping out at the stand.



One of the Fogmaker teams at BAUMA.
Maria Stillman, Peter Andersson, Stefan Törner, and Mario Flores



Victor Rigotti de Brito, Fredrik Rönqvist, Maria Sadowski, Samuel Caparrotti

Agrishow in São Paulo

Fogmaker Brazil had one more trade show in April: Agrishow. Fogmaker International's Mario Flores joined Samuel and Victor for this one and had a very productive time, interacting with large portions of the Brazilian agricultural industry.



Victor Rigotti de Brito, Samuel Caparrotti, Mario Flores

UITP Summit in Hamburg

This show focused on public transport took place in June and Fogmaker International co-exhibited with German partners Fischer Gruppe and Scharr Tec.

We took the opportunity to give industry professionals a sneak-peek of the new section valve. This solution will be perfect for electric buses that may have many different areas in need of protection.

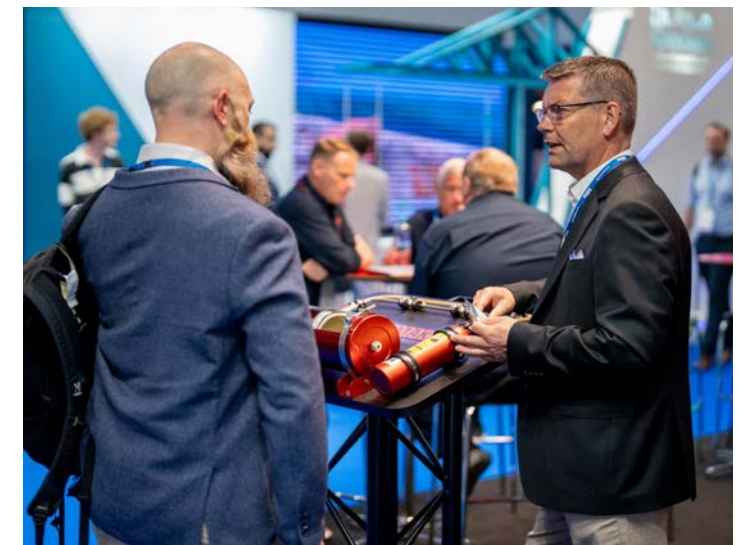


Niels Kleibl, Pontus Andersson, Helena Ador, and Erwin Uitz

TOC Europe in Rotterdam

Fogmaker has exhibited many times at this port-related event and become a well-known name in the industry.

A team from PSV in Great Britain joined us in the stand together with Wilbert de Beer from the Netherlands. Fredrik Rönqvist held a presentation on electric port equipment and sustainable fire suppress



Robert Tengvall presents the system to a potential customer.

Summer is here!

Fogmaker International will be open all summer,
but we have reduced capacity for a few weeks:
Limited capacity in production, July 21 - August 3
Limited capacity for deliveries, July 28 - August 10

FOGMAKER

I N T E R N A T I O N A L A B