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NEW PRODUCTS

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VER+DIS

EXTINGUISHING DEVICES FOR LITHIUM-ION BATTERIES



FLUORINE-FREE FOAM EXTINGUISHERS

OGNIOCHRON S.A. tel.: +48 33 875 10 70, e-mail: export@ogniochron.eu, www.ogniochron.eu

VER+DIS

FIRE EXTINGUISHING EQUIPMENT FOR LITHIUM-ION BATTERIES

OChron

DIS

^{ladzenie} gaśnicze do baterii litowych

² L ROZTWORU GAŚNICZEGO WYCIĄGNĄĆ ZABEZPIECZENIE



URZĄDZENIE <mark>GAŚNICZE DO BATERII</mark> 6 l roztworu gaśniczego

 WYCIĄGNĄĆ ZABEZPIECZENII
SKIEROWAĆ WĄŻ NA ŻRÓDŁO I NACISNĄĆ DŻWIGNIĘ. UŻYWAĆ W POZYCJI PIONOWEJ.

LITHIUM

EXTING. DEVICES FOR LITHIUM BATTERY FIRES





Lithium-ion batteries are increasingly used in modern life, both at home and in the workplace. They provide a power source for a wide range of devices such as **smartphones**, **laptops**, **scooters**, **etc**. When we use a battery, a process of transferring electrical energy takes place.

Unfortunately, sometimes, for various reasons, including:



overheating (thermal overload)



overloading (electrical overload)



mechanical damage

so-called **thermal runaway** (rapid heat dissipation) can occur inside the cells.

THERMAL RUNAWAY (RAPID HEAT DISSIPATION)

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When the battery starts to heat up more than it should, the increase in temperature causes the **electrolytic liquid to vaporise and produce a large amount of flammable gases.** Raising temperature **damages the seperator**, causing the gases to combine and another **release of enormous energy** and **consequently a cell fire**. The temperature reaches over **600** °C and a **chain reaction begins** - the cells ignite one from the other. It is practically very difficult to control such a fire. The only method possible today to combat this type of fire is to cool the battery.



THERMAL RUNAWAY (RAPID HEAT DISSIPATION)





Preventing or even stopping thermal runaway requires the introduction of a cooling agent that can take away large amounts of heat. The extinguishing mechanism is therefore purely physical in nature - the removal of heat.

The effectiveness of extinguishing is therefore largely dependent on the ability of the extinguishing agent to take away large amounts of heat, on the insulation of the battery and the availability of the agent to the battery.

VER-DIS units are designed to meet this challenge. They contain the extinguishing agent **Lithalex 7**, whose main ingredient is **thermally exfoliated vermiculite**, a naturally occurring mineral with a high level of heat absorption.

The extinguishing agent, applied to the battery in a pulsed manner, is able to take away the maximum amount of heat energy from the battery thereby stopping any uncontrolled chain reaction.

VER-DIS (VERMICULITE DISPERSION)





Properties of a vermiculite-based fire extinguishing agent:

Natural, ecological composition.

Non

Non-toxic and safe for humans and the environment.

Cools and insulates the battery quickly.

Suitable for extinguishing equipment up to 1000 V.

Chemically and physically inert (it only excretes water vapour when exposed to temperature).

HOW VER-DIS WORKS?



VER+DIS











Lithium-ion batteries can be a fire hazard through misuse or mechanical damage.

Before a fire starts, the faulty batteries heat up rapidly, you may hear a sizzle and see smoke and sparks or even an explosion.

The final stage is the thermal runaway reaction. Flames appear and spread quickly, threatening the surrounding area.

The best solution is to use the VER-DIS extinguishing device. Our innovative vermiculitebased agent will quickly cool the battery and extinguish the flames.

An airtight coating blocks oxygen and insulates the batteries preventing fire growth.

WHY SHOULD YOU CHOOSE VER-DIS?



AFTER LACH DER

Traditional fire extinguishing agents are not effective in extinguishing lithium battery fires.

WATER / WATER with additives	Cools locally but does not stop the fire spreading. Large amounts of water are required to extinguish. The fire, on the other hand, may reignite after time.	
POWDER ABC or D	Inhibits oxygen but has no cooling effect.	
CO2	Suppresses oxygen externally, but the battery produces its own oxidiser.	ogniochron
	The best solution is to use the VER-DIS extinguishing device. Our innovative vermiculite-based agent will quickly cool the battery and extinguish the flames. The airtight shell blocks oxygen and prevents the spread of fire.	CITERES OF EXTINGUISHING AGENT PULL OUT PIN. AIM HOSE AT BASE OF FIRE AND PRESS LEVER. USE IN UPRIGHT POSITION. CITERES USE OF REXTINGUISHING OF ELECTRIC DEVICES PULL OUT PIN. CITERES OF EXTINGUISHING OF ELECTRIC DEVICES

WHERE WILL THEY BE USED?



VER-DIS devices are used to protect shops and warehouses with lithium-ion batteries, with electronic equipment, bicycle and scooter rental shops and for domestic use. They are not suitable for extinguishing electric cars due to the location of the battery.



Shops and warehouses for batteries and accumulators.



Shops and warehouses for electronic equipment.



Shops and rental outlets for electric bicycles and scooters.



In private homes to secure charging tools and vehicles.

There are currently no portable fire extinguishers on the market for electric cars.

VER-DIS RANGE





21 VER-DIS 2x

For extinguishing batteries: up to 200 Wh Dedication: laptops, tablets, powerbanks, etc.

6 I VER-DIS 6x

For extinguishing batteries: from 250 Wh up to 500 Wh Dedication: cordless power tools, scooters and electric skateboards, etc.



9 I VER-DIS 9x

For extinguishing batteries: from 500 Wh up to 750 Wh Dedication: scooters and electric bikes, and batterypowered garden equipment such as lawn mowers.

201 VER-DIS 20x

For extinguishing batteries: from 750 Wh Dedication: vehicle charging stations, electronic equipment storage, rental of electric bicycles and scooters.



EXTING. DEVICES FOR LITHIUM BATTERY FIRES





Lithium-ion battery fires are a relatively new phenomenon and are not yet included in the scope of the **EN-3** fire extinguishing standard.

Currently, the European Committee for Standardisation is working on the development of such a standard. **Ogniochron** - as a committee member - takes an active part in this work.

We are aware of the scale of the difficulties posed by lithium-ion battery fires and the fact that there can be no 100% guarantee that such a fire will be extinguished.

We are constantly conducting research to improve **VER-DIS** products.



REACH CLP FOAM EXTINGUISHERS



The European Commission has introduced restrictions on the use of substances containing perfluoroalkyl compounds used in foaming agents under the name PFAS (EU Regulations 2017/1000 and EU 2019/1021).

PFAS compounds are divided into PFOS (perfluorooctane sulfonate) and PFOA (perfluorooctanoic acid). PFOA and PFOS are compounds based on C8-long carbon chains.

The fire extinguishing agents currently used by Ogniochron in foam extinguishers do not contain PFOS and PFOA compounds with a C8 carbon chain length. Instead, they contain a small percentage of C6 fluorinated surfactants (PFHxA), the use of which is now permitted by current legislation.



TIMETABLE FOR BANNING PFAS



(anticipated date of entry according to ECHA¹ - information for September 2023)



¹ ECHA - European Chemical Agency
² RAC - Committee for Risk Assessment
³ SEAC - Committee for Socio-Economic Analysis

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FLUORINE FREE FOAM EXTINGUISHERS



Technical data:

	GPN-3x	GPN-6x	GPN-9x
Extinguishing efficiency	13A 70B	27A 144B	34A 183B
Weight of extinguishing agent	31	61	91
Working agent	N2	N2	N2
Operation time	min. 9 s	min. 15 s	min. 15 s
Cylinder test pressure	27 bar	27 bar	27 bar
Operation pressure	15 bar	15 bar	15 bar
Operating temperature	+5°C/+60°C	0°C / +60°C	0°C / +60°C
Total weight	~3,9 kg	~9,3 kg	~14,0 kg
Fire under voltage	1000 V	1000 V	1000 V
Total height	412 mm	501 mm	576 mm
Cylinder diameter	125 mm	160 mm	185 mm

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