

LITHIUM FIRE INCIDENT MASK



Introduction

Thank you for purchasing the LFIM® mask and / or LFIM® fire safety KIT.

We truly appreciate your trust in our products and are happy with the fact you are part of the growing group of companies, employments and persons that are aware of all the risks of Lithium-ion cells and batteries.

The LFIM® mask has been developed in 2019 in Europe by Medisafe.

We offer a solution for workplace responders and employment that are exposed to the risks of Lithium-ion cells and batteries.

It doesn't matter if you are an gardener with electric tools or working in a repair shop for mobile devices or EV's, sooner or later we will all be exposed to that one Lithium-ion cell that is to fare gone and goes in thermal runaway.

Content

Page 2	Product details LFIM® mask
Page 3	Product details LFIM® Fire Safety KIT
Page 4	Certification, maintenance and general instructions
Page 5	Instructions use of LFIM®
Page 6	Technical drawing

This manual provides the essential information for safe and correct use of the LFIM® mask and Fire Safety KIT.

It includes product details, certification references, and maintenance guidelines intended for all users.



LFIM®

Lithium Fire Incident Mask

Description

LFIM® stands for **Lithium Fire Incident Mask** and is a respiratory and face protective mask that protects against the risks of lithium-ion incidents.

Risks Lithium-ion cells

Lithium-ion cells are used in a wide array of products, such as, phones, tools, mobility devices, vehicles, and battery energy storage. Besides the great benefit of high energy density that these lithium-ion cells provide, there is also an essential disadvantage. The lithium-ion cells composition and structure consists of a construction and materials that may become damaged by high temperature, impacts, drops or failing battery management system. These cells may undergo a chain reaction called thermal runaway caused by an internal short between anode and cathode. This creates heat within the cell evaporating the electrolyte, causing a pressure build-up until the cell bursts or explodes, releasing toxic and flammable gas in an exothermic reaction that can initiate a fierce fire.

Application

The **LFIM®** provides 15 minutes of respiratory protection against the toxic gases and fumes released from lithium-ion cells and protects the users face against High Speed Particles released when the lithium-ion cell explodes. The **LFIM®** forms an effective safety measure for workplace responders and employees working in the areas that are exposed to the risks of lithium-ion cells.

Designated use of LFIM®

LFIM® is developed and designed to protect workplace responders and employees in the first few minutes of a lithium-ion incident. These individuals if unprotected may be exposed to unacceptable risks. **LFIM®** provides protection for the first 15 minutes until professional emergency services arrive on the scene.

Understanding lithium-ion hazards is critical as it can help responders to engage only in actions deemed acceptable. **LFIM®** is not an SCBA or a protective device against all risks of a lithium-ion incident. **LFIM®** can be used for:

- **Initial entry assessment at the doorway** (evaluate conditions before deciding whether to proceed)
- **Evacuation support**
- **Support for attempt at extinguishment, insolation or movement of hazard to a safe place if conditions are safe enough to do so.**



DANGER

LFIM® is not a substitute for professional firefighting equipment such as SCBA and full protective clothing.



Benefits and Features

- **LFIM®** is produced by Medisafe BV in the EU
- **LFIM®** has a shelf life of 5 years after production
- **LFIM®** is vacuum packed "ready to use"
- **LFIM®** provides protection for 15 minutes
- **LFIM®** protects against toxic gases and particles

⇒	HCL	Hydrogen Chloride	100 % (g)
⇒	HF	Hydrogen fluoride	100 % (g)
⇒	LiOH	Lithium Hydroxide	100% (g/p)
⇒	VOC	Volatile Organic Compounds	(g/p)
⇒	C	Soot and particles in breathing air	
⇒	HSP	High speed particles and shards	

The Lithium Fire Incident Mask is deployable:

- Within the period before the expiry date.
- Provided in unopened packaging.
- For single use and a maximum of 15 minutes.

The Lithium Fire Incident Mask can be used by:

- Workplace responders and persons with respiratory training.
- Persons trained in fighting fire and Li-ion hazards.
- Persons in good health with adequate organ condition, particularly of the lungs and heart.

Specifications LFIM® mask:

- Adjustable, one size fits most
- Approx. weight: 1.5 lbs (0.7 kg)

LFIM® KIT

LFIM® Fire Safety KIT

Description

The LFIM® Fire Safety KIT combines the LFIM® mask with thick and heat insulating leather gloves in a carrying case with wall mounted bracket. The LFIM® Fire Safety KIT offers workplace responder and employees working in the area a complete equipment set ready and easy to grab in case of lithium-ion incident.

The LFIM® mask offers protection against gases, smoke and shrapnel from exploding Lithium-ion cells during maximum of 15 minutes.

(for more information read the LFIM® description)

The LFIM-gloves offer the ability to handle lithium-ion cells that are heating up or at risk of thermal runaway. If safe to do so, a cell, device or battery can be moved to a safe location. Or use the gloves as protection during extinguishing attempt or deployment of a battery fire blanket. These actions should always be followed by evacuation of the area.

The LFIM-gloves are made of heavy leather and equipped with heat insulation and shock absorbing lining. The glove is stitched with Kevlar yarn.



WARNING

Use the LFIM-gloves only on small electric equipment and lithium-ion cells with a voltage lower than 48 VDC.

The LFIM-gloves are not suitable for high voltage or high capacity Lithium-ion batteries or any battery that is not safe to handle by hand due to electrical hazard or weight

Designated use of LFIM® Fire Safety KIT

LFIM® Fire Safety KIT offers workplace responders, evacuating co-workers protection during implementing mitigation measures until professional emergency services arrive on the scene.

LFIM® Fire Safety KIT can be used for:

- **Initial entry assessment at the doorway** (evaluate conditions before deciding whether to proceed)
- **Evacuation support**
- **Support for attempt at extinguishment, insulation or movement of hazard to a safe place if conditions are safe enough to do so.**



DANGER

LFIM® Fire Safety KIT is not a substitute for professional firefighting equipment such as SCBA and full protective clothing.



Benefits and Features of LFIM® mask

- **LFIM®** is produced by Medisafe BV in the EU.
- **LFIM®** has a shelf life of 5 years after production.
- **LFIM®** is vacuum packed "ready to use".
- **LFIM®** provides protection for 15 minutes.
- **LFIM®** protects against toxic gases and particles.

⇒	HCL	Hydrogen Chloride	100 % (g)
⇒	HF	Hydrogen fluoride	100 % (g)
⇒	LiOH	Lithium Hydroxide	100% (g/p)
⇒	VOC	Volatile Organic Compounds	(g/p)
⇒	C	Soot and particles in breathing air	
⇒	HSP	High speed particles and shards	

Benefits of LFIM® Fire Safety KIT

- All emergency equipment available in 1 KIT
- Equipped with LFIM® mask
- Equipped with LFIM-Gloves
- LFIM® Fire Safety KIT is easy to remove from the wall mounted bracket and to carry to the location of the incident.

The LFIM® Mask is deployable:

- Within the period before the expiry date.
- Provided in unopened packaging.
- For single use and a maximum of 15 minutes.

The LFIM® Fire Safety KIT can be used by:

- Workplace responders and persons with respiratory training.
- Persons trained in fighting fire and Li-ion hazards.
- Persons in good health with adequate organ condition, particularly of the lungs and heart

Specifications LFIM® Safety KIT:

- Mask adjustable, one size fits most
- Gloves, one size fits most
- Dimensions: 15.5" x 10.75" x 5.5" / 39 x 27 x 14 cm
- Weight: approx. 5.7 lbs (2.6 kg)

Sectors where LFIM® is used

- Parking garages and EV charging locations
- Recycling and waste management companies
- Hoist and towage services
- Repair shops
- Tool charging station construction & landscaping
- Battery charging stations
- Battery Storage
- Trucks and passenger cars
- Buses and trains
- E-bikes and E-mobility in general
- Delivery areas and transshipment points
- Processing industry
- Battery and mobile device repair shops

Certification

The LFIM® is unique and the only respiratory protection available that provides protection against the specific hazards of lithium-ion cells and is certified according:

For Europe

- EN136: 1998 Full Face Mask
- EN14387 + A1 Filters
- EN166: 2001 Impact and face protection

For USA

- 84A-4423 NIOSH Full Face Maks + Filter
- Z87.1:2010 Impact and face protection

The packaging for long term storage is approved under Mod C2 EU. Reg 2016/425 concerning improved and for long term designated manufacturer packaging.

CE0161 Notified body EU reg. 305/2011
Aitex , Plaza de Emilio Sala 1, 03801, Alicante, Spain

Maintenance

The LFIM® is protected packed in a foam packaging and UV protective vacuum packaging in accordance with mod. C2 EU reg. 2016/425. This makes the annual inspection of the mask not necessary. The mask is suitable for single use within the shelf life period of maximum of 5 years. The LFIM® can be returned when the expiration date expires for refurbishment at a reduced rate by your local supplier from sustainability point of view.

Storage instruction: Store the LFIM® in a dry and dark place. Protect against direct sunlight.

Storage temperature: -10 °C to 70 °C. / 14 °F to 158 °F

Use: Single use.

Expiry date: See vacuum packaging and outside of storage box.

Important information

NOTICE

Read the user instruction before use !

DANGER

Users must be older than 18 years

DANGER

Avoid any contact with flames, fumes and gases. Do not under estimate the risks of lithium-ion incidents.

DANGER

Use LFIM® only in well-ventilated areas with a 19 % to 21 % oxygen level

WARNING

Avoid contact with soot from lithium-ion incidents

WARNING

Do not use the LFIM® for more than 15 minutes

WARNING

This mask is not a respirator, does not supply oxygen and is not intended for protection against gases, chemicals or other hazardous substances. This product is intended for the limited application and duration as indicated herein and does not provide certified protection in all hazardous environments .

WARNING

The manufacturer, Medisafe BV and resellers disclaim all liability for any injury, loss, or damage, resulting from the use or misuse of this product.

CAUTION

Before you use the LFIM® you should ensure:

- The integrity of the mask
- The filters are fitted and correct fixed in position.
- The headstraps are present and functional.
- The inhalation valves are present in the mask.

CAUTION

- The exhalation valve is present in the mask. Use the mask only after training in respiratory

CAUTION

protection and the use of the LFIM®.

CAUTION

Do not use LFIM® in confined spaces. The LFIM® is only for single use, do not use the mask after use or after the expiry date.

User Instructions

Putting on the LFIM®

1. Tear open the vacuum packaging by the notches at the seal seam. Remove the mask from the internal foam packaging.
2. Check the condition of the mask and filters before continuing. Do not use the LFIM® if there is damage or the filters are not properly connected.

3. Hold the mask in one hand and pull the straps with the other hand over your head. Position the mask for your face.



4. Tilt your head backwards to gain access to the lower straps. Use both hands to pull the lower straps until it fits tight around your chin.



5. After tightening the lower straps. If the mask still feels loose on your forehead, pull the top straps until the mask seal forms a tight fit around the face.



6. When the mask is snug and well positioned, perform a negative pressure test. With both hands cover the air inlet opening on each filter cartridge and inhale slowly. If the mask is fitted correctly you should feel the mask collapses inwards closer to your face and there should be no air leakage. Tighten straps as needed until achieving a successful negative pressure test.



WARNING

Do not use LFIM® mask if negative pressure test in step 6 above is not achieved.



WARNING

For a good seal between mask and face it is important to have clean, shaved skin for the best fitting. Be aware of the risk of your facial hair and scars in regards to a good fit of the mask.



WARNING

When the mask fits correctly you will experience resistance in breathing. This is normal and is caused by resistance in the filter cartridges. **Stay calm and breathe deeply in and out regularly.**

Use of LFIM®



DANGER

1. Use the LFIM® mask for maximum of 15 minutes. Longer use of LFIM® during lithium-ion incident can cause severe health damage.



DANGER

2. Designated use of LFIM®:
 - ⇒ **Initial entry assessment at the doorway**
 - ⇒ **Evacuation support**
 - ⇒ **Support for attempt at extinguishment, insolation or movement of hazard to a safe place if conditions are safe enough to do so.**

Taking of the LFIM®

1. After using the LFIM® Mask, proceed to a safe location and take off the mask.
2. Do this by pushing against the buckles of the straps. This will release the straps tension.
3. Then pull the LFIM® away from your face and move the mask back over your head.



WARNING

After using the LFIM® mask your clothes and body may be contaminated with soot, smoke and chemicals released from the lithium incident. These substances have an adverse effect on your health. Ensure that you:

4. Wash yourself well after using the LFIM® during an lithium-ion incident to remove any contamination from your body.
5. Change your clothes to avoid contamination with these substances and wash them separately from other laundry.
6. Dispose the used LFIM® after use.
7. Replace the used LFIM® after use.



CAUTION

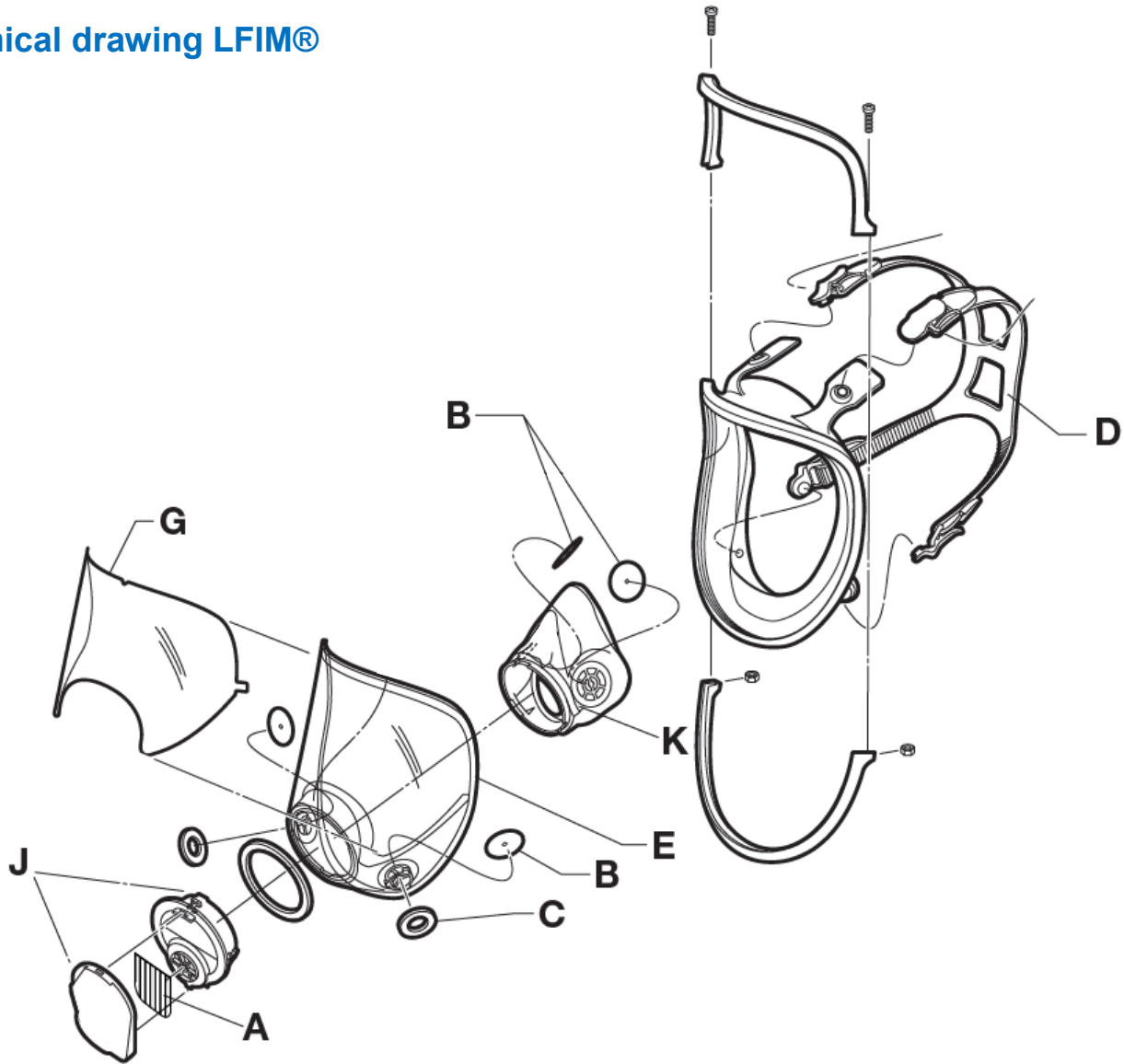
Responsibility, Risk and Guarantee

Use of the LFIM® is at the sole responsibility and risk of the user or party who has purchased the LFIM®

If you do not read, follow and execute the instructions, are not trained in lithium-ion hazards, use a LFIM® longer than 15 minutes, or expose yourself to greater risks than may be expected of a workplace responder, this may lead to health damage for which LFIM®, Medisafe BV or a LFIM® reseller cannot be held responsible.

The warranty on the Li-ion Fire safety Mask is a maximum of 12 months after date of purchase.

Technical drawing LFIM®



A	Exhalation Valve
B	Inhale Valve
C	Inhalation Gasket
D	Head Harness Assembly Includes head harness and buckle
E	Lens Assembly Includes lens, bayonet part fittings, inhalation valves and inhalation port gaskets
F	Spectacle Kit
G	Lens Cover Peel Offs
J	Centre Adapter Assembly
K	Nose Cup Assembly

BRIMSTONE FIRE PROTECTION

Brimstone Fire Protection specializes in cutting-edge solutions for fire containment and suppression. Our products are designed specifically to combat the unique challenges posed by lithium-ion battery fires, safeguarding your premises and operations.



Contact Brimstone Fire Protection for solutions or visit us on www.brimstonefireprotection.com

 +1 260-417-9111

 sales@brimstonefireprotection.com

 www.brimstonefireprotection.com

17607 Rupert road, Spencerville, (IN) 46788

Warning

The LFIM® mask is not a respirator, does not supply oxygen and is not intended for protection against gases, chemicals or other hazardous substances. Individuals with cardiac or respiratory conditions should consult a medical professional before use. This product is intended for the limited application and duration as indicated herein and does not provide certified protection in all hazardous environments. Use of these products is at your own risk. The manufacturer and seller disclaim all liability for any injury, loss, or damage resulting from the use or misuse of these products

