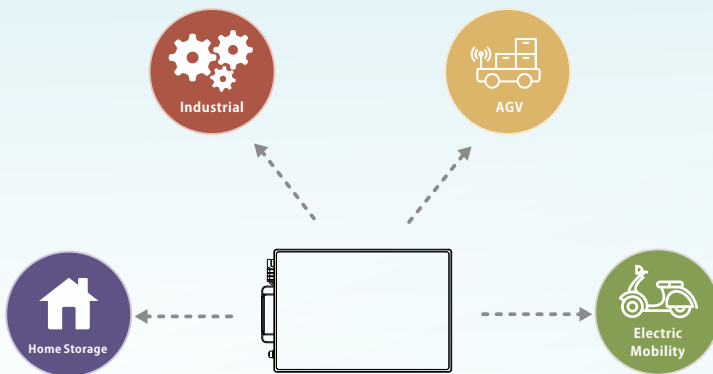


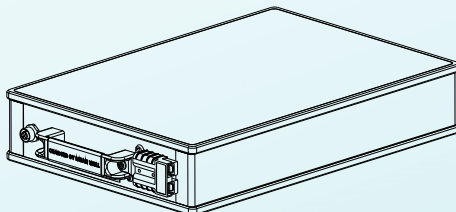
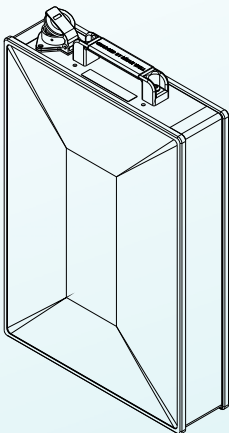
# MSDS Report - FMB-48N43.5

## MEAN WELL EUROPE

Charged by



According to GB/T16483-2008 & ISO11014:2009



## Section 1 - Identification

| Product information   |                           |            |
|-----------------------|---------------------------|------------|
| Part Number           | FMB-48N43.5               |            |
| Sample name           | Li-ion 14S 48V 43.5Ah FMB |            |
| Sample Receiving date | 2019-08-08                | S/N 340008 |

| Company information |                        |  |
|---------------------|------------------------|--|
| Company name        | MEAN WELL EUROPE N.V.  |  |
| Address             | Langs de Werf 8        |  |
| Zip code            | 1185XT                 |  |
| City                | Amstelveen             |  |
| Country             | The Netherlands        |  |
| Telephone           | +31 20 7586000         |  |
| Emergency telephone | +31 6 42512098         |  |
| E-mail              | batteryapp@meanwell.eu |  |

## Section 2 - Hazard(s) Identification

**Emergency overview:** No information available

**GHS:** Not a dangerous substance according to GHS

| GHS Label elements |               |  |
|--------------------|---------------|--|
| Hazard pictograms  | Not available |  |
| Signal word        | Not available |  |
| Hazard statements  | Not available |  |

| Precautionary statement(s) |               |  |
|----------------------------|---------------|--|
| Prevention                 | Not available |  |
| Response                   | Not available |  |
| Safe storage               | Not available |  |
| Disposal                   | Not available |  |

**Physical and chemical risk:** No information available

**Health hazard:** No information available

**Environmental hazards:** No information available

**Other hazards:** No information available

## Section 3 - Composition/information on ingredients

Classification of the substance or mixture: ☐ substance ☒ mixture

| Chemical composition        | CAS No.     | EC#       | Weight(%) |
|-----------------------------|-------------|-----------|-----------|
| (Li(NiCoMn)O <sub>2</sub> ) | 182442-95-1 | ---       | 15-35     |
| Carbon                      | 7440-44-0   | 231-153-3 | 10-25     |
| Al                          | 7429-90-5   | 231-072-3 | 5-10      |
| Cu                          | 7440-50-8   | 231-159-6 | 10-20     |
| Graphite                    | 7782-42-5   | 231-955-3 | 1-2       |
| Electrolyte                 | ---         | ---       | 5-15      |
| Silicon Rubber              | ---         | ---       | 2-10      |
| PE                          | 9002-88-4   | 200-815-3 | 0-2       |
| Al                          | 7429-90-5   | 231-072-3 | 1-5       |
| Ni                          | 7440-02-0   | 231-853-9 | 1-5       |
| ABS                         | 9003-56-9   | ---       | 8-10      |
| PC                          | 25037-45-0  | 201-245-8 | 2-5       |
| Stainless steel             | 65997-19-5  | 266-048-1 | 1-5       |
| Ag                          | 7440-22-4   | 231-131-3 | 0-1       |

Note:

CAS: Chemical Abstracts Service (Division of the American Chemical Society)

EC#: European Inventory of Existing Commercial Chemical Substances

"--": No data

## Section 4 - First Aids Measures

**General information:** No special measures required

**After inhalation:** Move victim to a fresh air area. Administer artificial respiration if breathing is difficult. Seek medical attention.

**After skin contact:** Remove contaminated clothing shoes. Immediately wash with water and soap and rinse thoroughly. Wash clothing and shoes before reuse. If irritation occurs, get medical attention.

**After eye contact:** Flush eyes with plenty of water for several minutes while holding eyelids open. Get medical attention if irritation persists.

**After swallowing:** Do not induce vomiting. Get medical attention.

**Acute and delayed affect:** No relevant information.

**Health effects:** No relevant information.

**To protect the rescuers advice:** No relevant information.

**To the doctor's advice:** Need timely medical treatment and special symptoms, no relevant information.

### Section 5 - Fire Fighting Measures

**Suitable extinguishing agents:** Use extinguishing agent suitable for local conditions and the surrounding environment. Such as dry powder, CO<sub>2</sub>

**Special hazards arising from the substance or mixture:** Battery may burst and release hazardous decomposition products when exposed to a fire situation. Lithium ion batteries contain flammable electrolyte that may vent, ignite and produce sparks when subjected to high temperature (>150°C(302°F)), when damaged abused (e.g. mechanical damage or electrical overcharging); may burn rapidly with flare-burning effect; may ignite other batteries in close proximity.

**Attention extinguishing method and protect measures:** Wear self-contained respirator. Wear fully protective suit.

### Section 6 - Accidental Release Measures

**Homework personnel protective measures, protective equipment and emergency disposal procedures:** Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation **Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.

**Steps to be taken in case material is spilled or released and Waste disposal method:** Remove ignition sources, evacuate area. Sweep up using a method that does not generate dust. Collect as much of the spilled material as possible, placed the spilled material into a suitable disposal container. Keep spilled material out of sewers, ditches and bodies of water. All waste must refer to the United Nations, the national and local regulations for disposal.

**To prevent the secondary disasters prevention measures:** See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information

### Section 7 - Handling and Storage

**Precautions for safe handling:** Consumption of food and beverage should be avoided in work areas. Wash hands with soap and water before eating, drinking. Ground containers when transferring liquid to prevent static accumulation and discharge.

**Information about fire and explosion protection:** Batteries may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

**Conditions for safe storage, including any incompatibilities:** Requirements to be met by storerooms and receptacles. Store in a cool, dry, well-ventilated place. Keep away from heat, avoiding the long time of sunlight.

### Section 8 - Exposure Controls, Personal Protection

#### Occupational exposure limit

| Ingredients with limit values that require monitoring at the workplace |                       |
|------------------------------------------------------------------------|-----------------------|
| 12190-79-3 Lithium Cobalt Oxide                                        |                       |
| TLV (USA)                                                              | 0.02mg/m <sup>3</sup> |
| MAK(Germany)                                                           | 0.1mg/m <sup>3</sup>  |

Note:TLV (Threshold Limit Value)

**Biological limit:** no relevant details information.

**Detection:** no relevant details information.

**Engineering control:** General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work.

**Respiratory Protection:** Use suitable respirator when high concentrations are present.

| Personal Protection                                                                  |                                                                                      |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Hand protection                                                                      | Eye protection                                                                       |
| Protective gloves                                                                    | Tightly sealed goggle                                                                |
|  |  |

### Section 9 - Physical and Chemical Properties

| Information based on basic physical and chemical properties |           |
|-------------------------------------------------------------|-----------|
| Appearance                                                  | Blank     |
| Form                                                        | Prismatic |
| Odor                                                        | Odorless  |

| Electrical properties information |          |
|-----------------------------------|----------|
| Voltage                           | 50.4V    |
| Cell Voltage                      | 3.6V     |
| Electric capacity                 | 43.5Ah   |
| Watt-hour                         | 2192,4Wh |

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable in normal circumstances

**Possibility of hazardous reactions:** Data not available.

**Conditions to Avoid:** Flames, sparks, and other sources of ignition, incompatible materials.

**Incompatibilities:** Oxidizing agents, acid, base.

**Hazardous Combustible Products:** Carbon monoxide, carbon dioxide, lithium oxide fumes.

## Section 11 - Toxicological Information

### Information on toxicological effects

**Acute toxicity LD/LC50 Values relevant for classification:** Not available.

LC50: (lethal concentration, 50 percent kill)

LD50: (lethal dose, 50 percent kill)

**Skin irritation/corrosion:** No further relevant information available.

**Eyes stimulus/corrosion:** No further relevant information available.

**Breathing or skin irritation:** No further relevant information available.

**Germ cell respectively:** No further relevant information available.

**Carcinogenicity:** No further relevant information available.

**Reproductive toxicity:** No relevant details information.

**Specific target organ system toxicity disposable contact:** No further relevant information available.

**Specific target organ system toxicity, repeated contact:** No further relevant information available.

**Inhalation hazard:** No further relevant information available.

**Potentially harmful effects:** No further relevant information available.

## Section 12 - Ecological Information

### Ecological toxicity

**Aquatic toxicity:** No further relevant information available.

**Persistence and degradability:** No further relevant information available.

### Behaviour in environmental systems

**Bioaccumulative potential:** No further relevant information available.

**Mobility in soil:** No further relevant information available.

### Ecological effects

**Additional ecological information:** No further relevant information available.

**General notes:** Do not allow material to be released to the environment without proper governmental

## Section 13 - Disposal Considerations

**Waste treatment methods and Recommendation:** Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packaging and Recommendation:** Disposal must be made according to official regulations.

## Section 14 - Transport Information

| Item                       | IATA                  | IMDG                  |
|----------------------------|-----------------------|-----------------------|
| UN Numer                   | UN3480                | UN3480                |
| UN proper shipping name    | Lithium Ion Batteries | Lithium Ion Batteries |
| Transport hazard class(es) | 9                     | 9                     |
| Packaging group            | II                    | II                    |
| Marine pollutant           | No                    |                       |

IATA: (International Air Transport Association) IMDG: (International Maritime Dangerous Goods)

**Transport information:** The Lithium Battery (Li-ion 14S 48V 43.5Ah FMB) complies to standards according to UN38.3.

UN38.3 report No. AGC06327181001UA01

According to the Packing Instruction 965 section IA of IATA DGR 63th Edition(2022) for transportation. The goods are complied with the requirements of Packaging Instructions PO065 section 1A or PI966-P967 Section 1 of 63rd DGR Manual of IATA (2022 edition)

According to the special provision 188 of IMDG (amdt. 40-20) or the <<Recommendations On The Transport Of Dangerous Goods-Model Regulations>> (20th). The package is subjected to dangerous goods.

More information concerning shipping, testing, marking and packaging can be obtained from Label master at <http://www.labelmaster.com>.

Separate Lithium-ion batteries when shipping to prevent short-circuiting. They should be packed in strong UN certified packaging for transport. Prevent falling, dropping, and breaking of the packaging. Prevent collapse of cargo piles and wet by rain.

**Transport Fashion:** By sea, By road.

### Section 15 - Regulatory Information

(EC)No. 1907/2006.

This Material Safety Data Sheet complies with the requirements of Regulation (EC) No. 1907/2006. The following laws, regulations, rules and standards of the substance or mixture of management to do the corresponding provisions:

| Chemical composition        | CAS No.     | IECSC  | TSCA   | DSL/NDL    | EINECS/ELINCS/NLP |
|-----------------------------|-------------|--------|--------|------------|-------------------|
| (Li(NiCoMn)O <sub>2</sub> ) | 182442-95-1 | Listed | Listed | Not Listed | Not Listed        |
| Carbon                      | 7440-44-0   | Listed | Listed | DSL        | Listed            |
| Al                          | 7429-90-5   | Listed | Listed | DSL        | Listed            |
| Cu                          | 7440-50-8   | Listed | Listed | DSL        | Listed            |
| Graphite                    | 7782-42-5   | Listed | Listed | DSL        | Listed            |
| Electrolyte                 | ---         | Listed | Listed | DSL        | Listed            |
| Silicon Rubber              | ---         | Listed | Listed | DSL        | Listed            |
| PE                          | 9002-88-4   | Listed | Listed | DSL        | Listed            |
| Al                          | 7429-90-5   | Listed | Listed | DSL        | Listed            |
| Ni                          | 7440-02-0   | Listed | Listed | DSL        | Listed            |
| ABS                         | 9003-56-9   | Listed | Listed | DSL        | Not Listed        |
| PC                          | 25037-45-0  | Listed | Listed | DSL        | Not Listed        |
| Stainless steel             | 65997-19-5  | Listed | Listed | DSL        | Listed            |
| Ag                          | 7440-22-4   | Listed | Listed | DSL        | Listed            |

EINECS: (European Inventory of Existing Chemical Substances)

ELINCS: (European List of Notified Chemical Substances)

DSL: (Canadian Domestic Chemical Substances)

IECSC: (Inventory of Existing Chemical Substances in China)

NDL: (Canadian non-domestic Chemical Substances)

NLP:

TSCA: (Toxic Substances Control Act of USA)

### Section 16 - Additional information

The above information is based on the data of which we are aware and is believed to be correct as of the data here of. Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data here of may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

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