

ENFUCCELL SoftBattery® – Environmental information

Enfucell is committed to improving its operations on a continual basis in health, safety and environmental performance. Enfucell acknowledges its responsibility in designing and manufacturing the power sources and has committed to using recyclable material and minimize the amount of harmful chemicals in its products.

Enfucell SoftBattery® belongs to Zinc-MnO₂ system and is called flexible thin battery or paper battery. We hereby declare that our battery complies with regulation (EU)2023/1542.

Enfucell meets the requirements of REACH (*Registration, Evaluation and Authorisation of Chemicals*) including the *Candidate List of substances of very high concern* (SVHC) [1]. As a downstream user Enfucell requires all suppliers to similarly fulfill the REACH requirements and confirm the quality and contents of the supplied raw material. A certificate of REACH is available on request.

The European RoHS directive [2] restricts use of hazardous substances such as lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). Enfucell SoftBattery® complies with the requirements regarding the restricted substances. A certificate of RoHS is available on request.

Enfucell SoftBattery® is within the limits set in the European packaging directive [3] for using lead, mercury, cadmium, or hexavalent chromium in packaging and packaging inks.

[1] Regulation EC 1907/2006 with amendment EC 552/2009 (REACH)

[2] Directive 2011/65/EU with amendment EU 2017/2102 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

[3] Directive 94/62/EC on packaging and packaging waste

ENFUCELL SoftBattery® – Safety information

In normal use and under the given working environment as mentioned in the *Technical Specifications for SoftBattery®*, Enfucell SoftBattery® should induce no harm or hazard. All our batteries are compliant with the European battery directive. General safety instructions are given below.

Short circuit: Connecting the two terminals together on one battery, or the opposite terminals together on multiple batteries, will cause a short circuit. A short circuit quickly discharges the battery completely. Short circuiting will not ignite the battery or cause any leakage of chemicals.

Danger of self-ignition: Unlike lithium-based power sources SoftBattery® is stable in normal storage and operating conditions. It is not possible to determine a self-ignition temperature.

Leakage: No leakage will occur in normal storage and operating conditions. Leakage may occur in temperatures above 100 °C (212 °F), or in condensing conditions. Hydrogen gas generation is negligible in normal storage and operating conditions.

Ruptured batteries: Corrosive material may be released from a ruptured SoftBattery®. Avoid direct skin and eye contact of ruptured SoftBattery® and its contents. Limitations for bending of SoftBattery® products can be found in the *Technical Specifications for SoftBattery®*.

Toxicological information: The following table reveals the substances classified as hazardous:

Substance	GHS code	Hazard statement
Manganese dioxide, MnO ₂	H302	Harmful if swallowed
	H332	Harmful if inhaled
Zinc Chloride, ZnCl ₂	H302	Harmful if swallowed
	H314	Causes severe skin burns and eye damage
	H410	Very toxic to aquatic life with long-lasting effects
Zinc, Zn	H410	Very toxic to aquatic life with long lasting effects

Flame resistance: Cover material (e.g. MPET and PET) of batteries will ignite if exposed to fire.

Transportation: Batteries in all modes of transportation (ground, air or sea) must be packed in a safe and responsible manner. Zinc - manganese dioxide batteries, such as Enfucell SoftBattery®, are not listed as dangerous goods under the IATA Dangerous Goods Regulation (DGR). Air transport document must include a statement: "Batteries, not IATA restricted, as per Special Provision A123".

Storage: The batteries must be stored in original packages. Elevated or highly alternating temperature will result in shortened battery life and reduced electrical performance.

Marking: SoftBattery® and devices containing one must be labelled with the symbol indicating "separate collection". Devices using SoftBattery® as a power source may need CE marking.