

ENFUCCELL SoftBattery® – Environmental information

Chemical industry can have an impact on sustainable development first and foremost through its products. Therefore, Enfucell is part of the *Responsible Care*® program, the chemical industry's global voluntary initiative. As a member of this program, Enfucell is committed to improve 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 use recyclable material and minimize the amount of harmful chemicals in its products. Enfucell meets the requirements of REACH (*Registration, Evaluation and Authorisation of Chemicals*) including the *Candidate List of substances of very high concern* (SVHC). 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.

Enfucell SoftBattery®, a thin, flexible and printed power source, complies with the *European directive 2006/66/EC of the European Parliament and of the Council on batteries and accumulators and waste batteries and accumulators* (known as the battery directive).

The *European Directive of the Restriction of the Use of certain Hazardous Substances (2002/95/EC) in electrical and electronic equipment* (RoHS directive) restricts use of hazardous substances such as lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). This directive does not apply to batteries. However, Enfucell SoftBattery® complies with the requirements regarding the restricted substances.

Also, Enfucell SoftBattery® power sources are within the limits set in the *European Directive 94/62/EC on packaging and packaging waste* for using lead, mercury, cadmium, or hexavalent chromium in packaging and packaging inks.

Enfucell SoftBattery® power source is compliant with the US packaging legislation (CONEG) for using lead, mercury, cadmium, or hexavalent chromium in packaging and packaging inks.

Based on the information given by suppliers, all material used in SoftBattery® is in conformity with the Chinese regulation: *Administrative Measure on the Control of Pollution Caused by Electronic Information Products* (also known as China RoHS). Concentration of lead, mercury, hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE) do not exceed 0.1 % and concentration of cadmium does not exceed 0.01 %. In addition, based on the information received from raw material suppliers, SoftBattery® meets the Chinese requirements set for mercury content of the batteries. Enfucell zinc - manganese dioxide batteries have mercury content lower than 0.0001 %, although this has not been tested in an appropriately certified laboratory. None of these hazardous substances are intentionally added. Total absence of the above-mentioned hazardous chemicals cannot be guaranteed due to the presence of trace element impurities in all substances.

Please seek local advice for further information about the possible effects of the above-mentioned legislation on your business, or about regulations regarding devices with printed batteries as a power source.

ENFUCCELL 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 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: Zinc – manganese dioxide batteries, such as Enfucell SoftBattery®, are not listed as dangerous goods under the IATA Dangerous Goods Regulations. However, batteries in all modes of transportation (ground, air or sea) must be packed in a safe and responsible manner.

Storage: The batteries must be stored in original packages. Elevated or widely 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.