Safety datasheet

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: **Nilar EC Battery pack**

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the mixture: The nickel metal hydride battery pack is an electrochemical device used to store electrical energy; capable of storing a substantial amount of electrical energy.

1.3 Details of the supplier of the safety data sheet

Company name: Nilar International AB
Adress: Stockholmsvägen 116 B
Zip code: SE- 187 30 Täby
Country: Sweden
Telephone: +46 (0)8 768 00 00
E-mail: sales.europe@nilar.com
Website: www.nilar.com

1.4 Emergency telephone number

Emergency telephone number: 112

2. Hazards identification

2.1 Classification of the substance or mixture

Nilar products are in compliance with Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization and the Restriction of Chemicals (REACH). The products are also in compliance with Regulation (EC) No. 1272/2008 concerning the Classification, labeling and packaging of substances and mixtures.

2.2 Label elements

Not applicable, see section 2.1.

2.3 Other hazards

This is an electrical energy storage device. The device may cause electrical shock, fire or injury.

3. Composition/Information on ingredients

3.1 Mixtures

Substance	Identification	Classification	Description
Nickel hydroxide	CAS-nr: 12054-48-7	H302, H315, H317, H332, H334, H341, H350, H360, H372, H400; H410 P201, P261, P273, P280, P280, P308+P313, P501	10-15 %
Cobalt	CAS-nr: 7440-48-4	H228, H317, H319, H334, H361f, H410 P210, P261, P273, P280, P285, P501	1-3 %
Nickel Metal Hydride Mixture	CAS-nr: 7440-02-0 CAS-nr: 7439-91-0 CAS-nr: 7440-00-8 CAS-nr: 7439-96-5 CAS-nr: 7440-45-1 CAS-nr: 7440-48-4 CAS-nr: 7440-67-7 CAS-nr: 7440-10-0	H228, H250, H334, H351, H372, H317 P210, P280, P314, P370+P378, P422, P370+P404, P501	20-25 %
Potassium hydroxide	CAS-nr: 1310-58-3		1-2 %
Lithium hydroxide	CAS-nr: 1310-66-3	H314, H302, H332 P280, P303+P361+P353, P305+P351+P338, P310	0-1%
Plastics	Not available	Not available	5-10 %
Aluminum	Not available	Not available	10-20%
Steel	Not available	Not available	5-10 %
Nickel	CAS-nr: 7440-02-0	H317, H351, H372, H412 P273, P280	5-10 %
Nickel-plated steel	Not available		10-20%

4. First aid measures

4.1 Description of first aid measures

Inhalation: In case of thermal decomposition or inhalation of electrolyte mist or metal dust, remove from exposure to fresh air. If necessary give oxygen. Get medical attention.

Skin contact: Remove contaminated clothing and wash before reuse. Immediately rinse the contact area thorougly with water.
Provide first aid to burned area to prevent infection. Get medical attention.

Eye contact: Immediately flush eyes with water for at least 15 minutes. Get medical attention.

Ingestion: In case of ingestion of electrolyte DO NOT induce vomiting. If victim is conscious and alert give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Potential Health Effects: No health effects or exposure unless the pack and module casings have been breached, the pack is subjected to thermal decomposition (fire), or the pack has been operated outside the Nilar specifications.
In the event of a breach, fire occurrence or improper operation the potential health effects are as follows:

Likely Routes of Exposure: Eye contact, Skin contact, Inhalation, Ingestion.

Eye: Contact with caustic, alkali electrolyte causes severe burns and may cause irreversible damage. Contact can also cause corneal clouding.

Skin: Contact with caustic, alkali electrolyte may cause severe burns. Exposure to electrolyte may also cause irritation and dryness to the skin.

Inhalation: Irritation from mist or liquid droplets may cause severe irritation of upper respiratory tract with coughing, burns, breathing difficulty and coma. Toxic smoke may come from thermal decomposition of plastic.

Ingestion: Can cause burns to mouth and perforation of digestive tract. Severe digestive tract burns will be accompanied by abdominal pain, vomiting and possible death.

4.3 Indication of any immediate medical attention and special treatment needed

See section 4.2

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:
Pack not breached: use smothering agent such as CO_2 and/or water.
Cooling the exterior of the batteries will help prevent rupturing.
Pack breached, no exposed plates: CO_2 and/or water.
Pack breached, exposed plates: CO_2 and/or water.

5.2 Special hazards arising from the substance or mixture

Products of Combustion: Oxides of carbon; metal; dense, toxic smoke; intense heat.

5.3 Advice for firefighters

If the battery is being charged, turn off electric power. In the event that the battery has been breached exposing electrode plates, monitor the area for a reoccurrence of the fire until all components have cooled to ambient temperature. Immediately cover the exposed components to prevent spontaneous combustion of the plate materials. Apply water spray to cool down the exterior of the batteries.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protection recommended in Section 8.

6.2 Environmental precautions

Spill or Leak: Modules inside the battery pack are sealed against electrolyte loss. Under normal handling spillage of alkali electrolyte will not occur. Battery may emit electrolyte, oxygen or hydrogen gas through the rupture disc if charging or discharging rates exceed manufacturer's recommendations or if pack has been breached.

6.3 Methods and material for containment and cleaning up

If electrolyte leaks or spills, ventilate area. Collect electrolyte spillage with absorbing material, such as sand or universal binders, before proper disposal. Dispose in accordance with applicable local, state and federal regulations.

6.4 Reference to other sections

Information on safe handling, see section 7. Information on personal protective equipment, see section 8. Information on disposal, see section 13.

7. Handling and storage

7.1 Precautions for safe handling

The battery stores electrical energy and is capable of rapid energy discharge. Handle battery carefully to avoid puncturing case or electrically shorting terminals.

7.2 Conditions for safe storage, including any incompatibilities

Nilar battery packs can be stored long periods without loss of performance. Battery packs must be stored in dry (< 90% relative air humidity and without condensation) and preferably cold conditions.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values: Not applicable, see section 2.1.

8.2 Exposure controls

Decommission of damaged products: Always wear PPE (Personal Protective Equipment) during decommission of damaged products. At minimum this includes: Safety googles, safety shoes with steel toe and electrically insulated gloves.

Maintenance/installation work: Wear PPE (Personal Protective Equipment) including safety googles and safety shoes with steel toe.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties of a sealed battery pack

Appearance: Solid.
Odour: Odorless.
pH: Not Applicable.
Boiling point: Not Applicable.
Flash point: Not Applicable.
Flammability: Not Applicable.
Relative density: Not Applicable.
Solubility: Insoluble.

9.2 Other information

No other information.

10. Stability and reactivity

10.1 Reactivity

Not applicable.

10.2 Chemical stability

Stable at normal operation conditions.

10.3 Possibility of hazardous reactions

Will not occur under normal conditions. See Section 5 and 6 for reaction products and emissions if pack is breached.

10.4 Conditions to avoid

Do not exceed manufacturer's recommendations for charging and discharging or use the battery for an application for which it was not specifically designed. Do not electrically short. Do not exceed manufacturer's recommendations for ambient temperatures. Do not expose to fire. Do not breach by way of physical and mechanical damage.

10.5 Incompatible materials

Avoid contact with acids and oxidizers.

10.6 Hazardous decomposition products

None under normal conditions.

11. Toxicological information

11.1 Information on toxicological effects

Under normal use no toxicological materials are released. If the battery modules become damaged due to mechanical failure or fire, contact with hazardous materials is possible. For information on effects via likely routes of exposure see section 4.2.

12. Ecological information

12.1 Toxicity

General: This product is not expected to be harmful to the ecology.

13. Disposal considerations

13.1 Waste treatment methods

Hazardous waste according to SFS 2011:927	No
EWC-code	16 06 04, 20 01 34

In countries outside EU consider local regulations and laws.

14. Transport information

Nilar battery packs are not classified as dangerous goods when transported by air (ICAO/IATA), road (ADR) and rail (RID). Nilar battery packs are defined as dangerous goods, class 9, under the IMDG code for sea transportation if shipped in cargo transport units with more than 100 kg batteries. UN number and Proper Shipping Name are UN 3496 and Batteries, Nickel-Metal Hydride respectively. For air transportation Nilar battery packs are covered by the entry "Batteries, dry" in the list of dangerous gods in IATA (no UN number).

Batteries packed for transportation shall be separated from each other to prevent short-circuits and securely packed to prevent movement that could lead to short-circuits.

Transport regulation	UN number	UN proper shipping name	Class	Packing group
ADR (road)	UN 3496	Batteries, Nickel-Metal hydride	–	N/A
RID (rail)	UN 3496	Batteries, Nickel-Metal hydride	–	N/A
IMDG(sea)	UN 3496	Batteries, Nickel-Metal hydride	9	N/A
ICAO/IATA (air)	–	Batteries, Nickel-Metal hydride	–	N/A

15. Regulatory information

15.1 Safety, health and environmental regulations/ legislations specific for the substance or mixture

• EU-directive 2006/66/EG ('Battery Directive'). The battery packs do not contain the heavy
metals lead, mercury or cadmium.
• Waste Electrical and Electronic Equipment (WEEE) Directive 2012/19/EU
• Restrictions of certain hazardous substances according to RoHS Directive 2011/65/EU.
• Nilar products are in compliance with Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization and the Restriction of Chemicals (REACH).

16. Other information

The above information is in accordance with the above laws and is based on knowledge and experience at the time of issue. It is the user's responsibility to use this product in a safe manner and comply with all applicable laws and regulations regarding use of the product. The user should be aware that the use of the product for purposes other than those for which it is produced, is a potential risk.

The data in this Material Safety Data Sheet / Product Safety Data Sheet relate to only specific material designated herein and do not relate to use in combination with any other material or in any process. The information set forth herein is based on technical data that Nilar believes are reliable. It is intended for use by persons having technical skill and at their own discretion and risk. Nilar makes no warranties, expressed or implied, and assumes no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents. Any use of this data or information must be determined by the user to be in accordance with federal, state, and local laws and regulations. Nilar assumes no responsibility and makes no warranty, expressed or implied, representation, promise or statement as to the completeness, accuracy, or currency of any data so provided.

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