BATTERY INFORMATION SHEET
INDUSTRIAL NI-CD CELLS, MODULES AND BATTERY SYSTEMS

Per OSHA (29CFR 1910.1200) AND REACH REGULATION (EC 1907/2006, ART 31), batteries are ARTICLES with no intended release and are not covered by legal requirements to generate or supply an SDS or MSDS

AERO DESIGN, INC. 101 Clemmons Road Mt. Juliet, TN 37122 Information: 615-754-7700 (phone) 615-754-8116 (fax)	**For Chemical Emergency** Spill, Leak, Fire, Exposure or Accident Call CHEMTREC – Day or Night 1-800-424-9300 or +1-703-527-3887

HMIS RATINGS: 3 Health 1 Flammability 2 Reactivity

1. IDENTIFICATION

1.1 PRODUCT: Industrial Ni-Cd cells, modules and/or battery systems composed of these cells.
1.2 SUPPLIER: Aero Design Inc. 101 Clemmons Road Mount Juliet, TN 37122
1.3 EMERGENCY CONTACT: CHEMTREC : 1-800-424-9300/ OUTSIDE U.S +1-703-527-3887

2. HAZARD IDENTIFICATION

2.1 AT CELL LEVEL:
The cells are not chemically dangerous with normal usage. The electrode material and electrolyte solution is contained within the cell. The battery should not be opened or burned. Exposure to the ingredients inside the cell could be harmful.
EYE CONTACT: The electrolyte solution contained within an open cell can cause severe burns.
SKIN CONTACT: Electrolyte solution inside the cells can cause severe burns.

2.2 MODULE and BATTERY SYSTEM LEVEL:
When the battery system and/or module are configured to perform at greater than 100 volts, access should be restricted to this area. Only authorized personnel trained to work with and on such systems should be allowed in the restricted area.
TEMPERATURE: Do not place the batteries on or near fire or flame or other high temperature locations. Batteries should be kept below 158 degrees Fahrenheit.

3. COMPOSITION, INFORMATION OR INGREDIENTS

3.1 AT CELL AND MODULE LEVEL:

Component	CAS Number	EINECS/ELINCS	Content (weight %)
Active Nickel**	12054-48-7	235-008-5	4-15
Active Cadmium***	21041-95-2	244-168-5	7-12
Cobalt	21041-93-0	244-166-4	0-2
Alkaline electrolyte (ph-14)	N/A	N/A	14-40
Plastics	N/A	N/A	5-20
Steel	N/A	N/A	10-40
Nickel	7440-02-0	231-111-4	5-20
Copper	7440-50-8	231-159-6	0-10

***Quantities may vary between different cell models**
****Active nickel present as Ni(OH)2 and NiOOH**
*****Active cadmium present as Cd(OH)2 and Cd : the cells and modules, depending on the state of charge, contain cadmium (CAS 7440-43-9, EINECS 231-152-8), listed on REACH candidate list since June 2013**

3.2 AT BATTERY SYSTEM LEVEL:
Depending on the application and on the customer requirements, the modules are assembled either in plastic, wood or steel containers.

4. HANDLING AND STORAGE

STORAGE: Store in a dry place. Since short circuit can cause a burn hazard, keep the batteries in original packaging and ensure protective devices that are installed stay in place until use.

HANDLING:

- **Do not short the positive (+) or Negative (-) terminal with conductive materials.**
- **Do not reverse the polarity**
- **Do not open the battery system or modules**
- **Do not submit to excessive mechanical stress**

CHARGING/DISCHARGING: Refer to applicable Component Maintenance Manual (CMM)

5. PHYSICAL AND CHEMICAL PROPERTIES

The Nickel-Cadmium cell or battery described in in this Battery Information Sheet are manufactured "article" and does not expose the user to hazardous chemicals when used in accordance with the manufacturer specifications.

- **Boiling Point: N/A**
- **Vapor Pressure N/A**
- **Specific Gravity N/A**
- **Melting Point N/A**
- **Vapor Density N/A**
- **Physical Shape and color as supplied**

6. STABILITY AND REACTIVITY - The battery system is stable when handled and stored according to section 4

MATERIALS TO AVOID: Do not fill cells with acidic electrolyte

CONDITIONS TO AVOID: Avoid exposing the battery to fire and high temperatures. Do not disassemble, crush or short-circuit the electrode connections or install with incorrect polarity. Avoid deformation/crushing of cells.

7. TOXICOLOGICAL INFORMATION

If the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure, toxic and hazardous internal components may be exposed.

ACUTE TOXICITY:
The electrolyte:
Potassium Hydroxide LD50/oral/rat: 365 mg/kg

HEALTH HAZARD
Skin contact can cause severe injury.
Eye contact rapidly causes severe damage. Risk of permanent damage.
Ingestion usually results in severe injury. Risk of permanent injuries

8. ECOLOGICAL INFORMATION

There is no ecological harm when batteries are used correctly and recycled after use has ended.

Spilled/Released electrolyte: The sharp PH rise may cause harmful impact on fish, plankton and stationary organisms. If released to water bodies, the electrolyte contained in the product can be toxic for aquatic organisms because of alkalinity.

9. DISPOSAL INFORMATION

As with all battery systems, Ni-Cd cells must be collected separately from other waste and recycled. Use an approved local recycler or Contact your Aero Design, Inc. sales rep for more information.

*** Never incinerate Ni-Cd batteries.**
*** Never dispose of Ni-Cd batteries in landfills.**

Europe: End-of-life management must be performed according to directive 2006/66/EC on batteries and accumulators and waste batteries and accumulators as well as its transportation into each European Union's Member State national legislation. Check with your national or local environment authority for details.

10. TRANSPORT INFORMATION

10.1 UNITED NATIONS

- **UN#: 2795, Batteries, Wet, filled with alkali, Class 8**
- **UN#: 2800, Batteries, Wet, Non-spillable, Class 8**

10.2 INTERNATIONAL CONVENTIONS

- **AIR: IATA manual**
- **SEA: IMDG code**
- **LAND U.S.A: 49CFR**
- **LAND EUROPE: ADR(road) or RID (rail)**

10.3 APPLICABLE REQUIREMENTS

- **Batteries removed from original manufacturer packaging should be shipped according to applicable regulations for UN2795 and/or UN2800- dependent upon battery part number/ configuration. See 10.1 above.**
- **Batteries/packaging that meet the Aero Design, Inc. exceptions and or DOT special permits may transport and/or forward with undisturbed original packaging/labels. A copy of the required document/labels will be attached to the shipping container(s).**
- **When forwarding DOT SP-11078 packages, a copy of the permit must be kept on file by the forwarder/shipper.**
- **Defective or damaged cells or batteries that have the potential of leading to a hazardous event during transport must not be shipped.**
- **More information concerning shipping, testing, marking packaging, special provisions and handling of defective/damaged products can be obtained from your Aero Design, Inc. and/or your Sales representative.**

11. REGULATORY INFORMATION

11.1 PRODUCT MARKING

- **U.S.A Marking includes the three pointed chasing arrows symbol and NiCd abbreviation.**

12. FIRST AID MEASURES (Not anticipated under normal use)

For Contact with electrolyte:

EYE CONTACT: Rinse immediately with large amounts of water and seek immediate medical attention/treatment.

SKIN CONTACT: Rinse immediately with plenty of water and seek medical attention/treatment.

INHALATION: Remove to fresh air, rinse mouth and nose with water and seek immediate medical attention/treatment.

INGESTION: If the injured is fully conscious, clear mouth with water and afterwards drink plenty of water. DO not induce vomiting. Send immediately to hospital for medical attention/treatment.

13. FIREFIGHTING MEASURES (Not anticipated under normal use)

EXTINGUISHING MEDIA:

- **Use class D-Dry chemical and/or sand**
- **Do not use water**

SPECIAL FIRE FIGHTING PROCEDURES:

- **Fire fighters should wear self-contained breathing apparatus and full fire-fighting protective clothing.**
- **If overheated by an external source or by internal shorting, the cell may give off potassium hydroxide mist and/or hydrogen gas.**
- **In fire situations, fumes containing cadmium and nickel compounds may develop; danger of serious acute damage to health by inhalation of fumes**

14. EXPOSURE TO CONTROLS AND PERSONAL PROTECTION (Not necessary under normal use)

- **Handle an opened batter only in well ventilated place.**

RESPIRATORY PROTECTION: Fire fighters should wear self-contained breathing apparatus

HAND PROTECTION: Use polypropylene, rubber or Viton gloves when handling leaking or ruptured cells

EYE PROTECTION: In case of incident or after an abusive use, in case of a leak or cell opening, wear safety glasses with protected side shields or mask covering the whole face when handling leaking or ruptured cells.

OTHER: In the event of leakage or ruptured cells, wear a rubber apron and protective clothes.

15. ACCIDENTAL RELEASE MEASURES (Not anticipated under normal use)

INDIVIDUAL PRECAUTIONS:

In case of fire, evacuate the employees from the area until safe.
In case of electrolyte spill flush electrolyte spillage with plenty of water and neutralize with dilute inorganic acid if possible and beware risk of falling/slipping.
In case of skin or eye contact, inhalation or ingestion, follow the measures described in section 12.

ENVIRONMENTAL PRECAUTIONS:

Avoid sewage, surface water, ground, atmosphere and underground water contamination of electrolyte that has not been neutralized.

WAYS OF CLEANING:

While using protective glasses, gloves and/or clothing, use absorbent material (sand, earth or vermiculite) to absorb any excluded material. Seal leaking battery (unless hot) and contaminated absorbent material in a plastic bag or suitable leak proof container and send for recycling in accordance with local regulations.

16. OTHER INFORMATION

This information has been gathered from sources considered to be dependable and is, to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, neither exhaustively nor perfect reliability can be granted. Information does not imply implicit or specific warranty of it.

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