Material Safety Data Sheet 640-257

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Applicable battery variants	**Part numer**
K Master	640-257-**A**-*
K Slave	640-257-**B**-*
K Slave-end	640-257-**E**-*

* - any following character

Modification log / *Rejestr modyfikacji*			
Version / *Wersja*	**Description** / *Opis*	**Author** / *Autor*	**Approved by** / *Zatwierdził*
v_0_01	- material safety data sheet of battery pack	Szymon Majewski	
			Jeżeli to pole jest puste to dokument powinien być traktowany jako NIEZATWIERDZONY. **If this field is empty then document should be considered as NOT APPROVED.**

Table of contents

1. Chemical product and company identification

Sections from 2 to 13 are based on information from battery modules manufacturer and relate mainly to modules, which are the most dangerous component of ICPT battery system if not used correctly or damaged. Other battery system components do not pose danger to battery users.

1.1. Product identifier

640-257 NMC lithium-ion battery pack

Chemical class: ADR Class 9A – miscellaneous dangerous goods

Synonym: Li-ion

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

1.2.1. Relevant uses

The battery system can be used only in prototype vehicles system i.e. as power supply source.

1.2.2. Uses advised against

None known.

1.3. Details of the supplier of the material data sheet

Name	Impact Power Clean Technology S.A.
Address	ul. Świętokrzyska 30/63 00-116 Warszawa Poland
Office address	Aleje Jerozolimskie 424A 05-800 Pruszków Poland
Shipping address	ul. Jarzębinowa 12 05-800 Pruszków Poland

1.4. Emergency telephone numer

+48 22 758 68 65

2. Hazard identification

2.1. Summary of danger

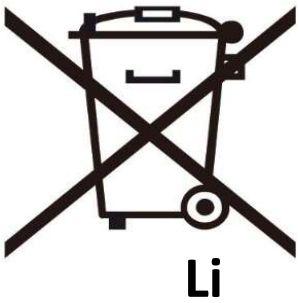
Warning, do not open or remove, do not expose to flame or open fire. Do not mix batteries with different models, different chemical properties or different types. There is a danger of explosions and burns under the conditions of fire. Do not short-circuit, squeeze, burn or disassemble the battery.

2.2. Classification of the substance or mixture [REGULATION (EC) No 1272/2008]

Flam. Liq. 3:	H226 Flammable liquid and vapour.
Skin Corr. 1:	H314 Causes severe skin burns and eye damage.
Eye Dam. 1:	H318 Causes serious eye damage.
Acute Tox. 4:	H302 Harmful if swallowed.
STOT RE 1:	H372 Causes damage to organs through prolonged or repeated exposure.
Aquatic Chronic 3:	H412 Harmful to aquatic life with long lasting effects.
Skin Sens. 1:	H317 May cause an allergic skin reaction.

2.3. Label elements

Please observe all warning labels and notifications on the battery package and enclosure.
Exemplary data plate containing the set of basic battery pack parameters, as required by law.



Crossed out wheelie bin symbol explains that after use batteries should be taken to separate collection for recycling. Do not dispose of them as unsorted municipal waste. Refer to chapter “Used batteries” for details on the recycling procedure.

“Li-ion” is the description of electrochemical system of battery pack

Black universal recycling symbol U+267B

Warning against electric shock.

Exercise caution when connecting the battery pack to the system. Mind the stickers at each connector on the battery pack front panel.

Please follow all safety symbols on battery enclosure/package.

2.4. Other hazards

Physico-chemical hazards	At temperatures over 70 °C risk of bursting and withdrawal of electrolyte liquid exists. When a cell is exposed to an external short-circuit, it will cause heat generation and ignition. Reactions of the electrolyte and the electrodes with water and humidity are possible.
Human health dangers	The contained dangerous materials are not freely available for foreseeable use.
Other hazards	none

3. Composition/information on ingredients

The chemical components of the battery are enclosed in the container to have no hazard as a battery. The battery is a lithium ion battery and its improper use may cause deformation, leakage of electrolytes (liquid in the battery), overheating, bursting, fire, or generation of stimulus/corrosive gas. Be sure to observe the warning and instructions as these events result in injury and equipment failure. Due to the chemical composition of the lithium-ion battery belongs to the group of dangerous goods and requires special treatment.

In case of electrolyte leakage from the battery:

Acute toxicity: Oral (rat) LD50 >2g/kg (estimated per cell)

Irritation: Irritating to eyes and skin

Mutagenicity: Not specified

Chronic toxicity: Not specified

Composiition of Li-ion cell

Dangerous component	**A range of concentration or concentration.**	**CAS NO.**
NCM	32%-38%	/
carbon	0.5%-2.0%	7440-44-0
copper	5%-10%	7440-50-8
graphite	18%-24%	7782-42-5
Polyvinylidene fluoride	0.1%-1%	24937-79-9
aluminum	10%-15%	7429-90-5
Ethylene carbonate	15%-20%	96-49-1
lithium	1%-4%	7439-93-2

The concentrations of the ingredients are valid for cells. They are not for the complete system. The structural design of the cells prevents the release of the hazardous media contained therein when the unit is used for its intended purpose.

4. First – aid measures

4.1. Description of first aid measures

General first aid actions

Apply existing general rules concerning first aid. Especially, observe the following guidelines:

- Move the injured to a safe place (at least 50 meters from the dangerous area) in the fresh air.
- Perform cardiorespiratory resuscitation (CPR) if the victim is not breathing.
- Call emergency medical service.

Electrolyte exposure

An electrolyte is a chemical substance contained in battery cells. Due to mechanical damage, the substance may leak outside the battery enclosure. Electrolyte leaking from the battery emanates a typical sweet odour.

Actions:

- Consult a doctor immediately.
- Remove the victim into fresh air and keep him calm.
- Remove and isolate contaminated clothing and shoes (of the injured and your own).
- In case of contact skin with electrolyte, immediately flush skin with lukewarm water with dishwashing soap or soap until medical help arrives; flush eyes with running water until medical help arrives. Consult a doctor if skin irritation persists.
- In case of contact eye with electrolyte rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Shield unaffected eye. If eye irritation persists get medical advice/attention.
- In case of electrolyte swallowing do NOT induce vomiting. Swallowing may cause gastrointestinal tract burns, nausea, and vomiting.
- After inhalation of vapour or swallowing of electrolyte seek medical help immediately.
- Inform medical personnel of substances and materials involved. Ensure they took appropriate precautions to protect themselves.

Electric shock

- Person after electric shock should be checked for internal injuries even if he or she has no obvious and visible symptoms.

4.2. Most important symptoms and effects, both acute and delayed

No information available.

4.3. Indication of any immediate medical attention and special treatment needed

Electrolyte exposure

- Wear protective gloves.
- Remove and isolate any clothing which had contact with electrolyte.
- Make sure you only use medicinal products which do not irritate patient's wounds and do not trigger chemical reaction with electrolyte within wounds.

Electric shock

- Do not assume the patient to be well after surviving an electric shock. Even when (s)he is conscious hospitalization and examination of internal organs are needed.

5. Fire – fighting measures

5.1. Extinguishing media

According to local fire protection regulations. CO_2, metal fire-ex powder or dry powder extinguisher are recommended by the battery manufacturer. When the battery is on fire then water is allowed only to a cooling casing of the battery. When the battery is open and cells are visible, water is forbidden extinguishing media to be used directly on the cells.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: carbon monoxide, carbon dioxide, lithium oxide fumes.

Conditions under which flammability could occur are mechanical damage of battery enclosure, vehicle collision, overcharge, significant rise of temperature in battery pack cells, etc.

5.3. Advice for firefighters

Prevent the inhalation of toxic gas and carry out extinguishment from the windward.

Proceed according to local fire regulations.

Special hazards arising from the substance or mixture:

- Hydrogen fluoride (HF)
- Risk of formation of toxic pyrolysis products
- Bursting batteries can be forcibly projected from a fire

Fire fighting procedures for user:

Fire as the result of collision/ road accident/ severe impact

- Each vehicle should be equipped with extinguishing agents and safety equipment according to effective local fire protection regulations. It is recommended that each vehicle running on lithium-ion batteries has CO_2, metal fire-ex powder, or dry-powder fire extinguishers on board.
- In case of severe impact/shock (even when there is no visible damage) inform fire brigade immediately; give information about the vehicle- state clearly that the vehicle is electric, inform about the type of potential fire (D) and burning substance - chemistry inside battery cells (section “Composition/information on ingredients” of this document); the short circuit is possible due to broken battery insulation even after vehicle power shut off.
- Do not extinguish battery fire. The risk of toxic vapour inhalation and severe burns is too high.
- Remain at the disposal of the fire brigade when they arrive.

Fire in a storage area

- Storage area should be prepared and equipped according to local fire prevention inspector prescription in compliance with effective local laws. It is recommended that the area has: CO_2, metal fire-ex powder or dry powder fire extinguishers (2 pieces, capacity – 6 kg), and personal protective equipment: respirators, dielectric insulating gloves. Water extinguishers are forbidden.

- Battery fire danger is not recognized only by sparks and flames. Other potential fire symptoms are leaking fluids, increased temperature, and disturbing sounds such as bubbling or gurgling inside the battery.
- Remain upwind of the fire.
- Call for medical help and provide first aid to the injured (see section “First – aid measures”).
- Call the fire brigade and inform them about the accident; give them information about the vehicle- state clearly that the vehicle contain lithium-ion batteries, inform about the type of fire (D) and burning substance - chemistry inside battery cells (section “Composition/information on ingredients” of this document).
- Remain at the disposal of the fire brigade when they arrive.
- Do not extinguish battery fire yourself unless you have specialised equipment and attended the training. The risk of toxic vapour inhalation and severe burns is too high.
- To minimise damage to company goods and property before the fire brigade arrives use prescribed by local the fire prevention inspector personal protective equipment when extinguishing the fire. Prevent the inhalation of toxic gas and carry out extinguishment from the windward.
- The fire should be extinguished by the fire brigade with suitable extinguishing media.

Fire during charging

- Battery fire danger is not only recognized by sparks and flames but potential fire symptoms are leaking fluids, increased temperature, bubbling or gurgling sounds inside the battery.
- If it is safe to disconnect power from the battery (disconnect from the grid/ disable current flow in the battery) – use an emergency power disconnect switch in the building/ area.
- Remain upwind of the fire.
- Call for medical help and provide first aid to the injured (see section “First - aid measures”).
- Call the fire brigade and inform about accident; give them information about the vehicle- state clearly that the vehicle is electric, inform them about the type of fire (D) and burning substance - chemistry inside battery cells (section “Composition/information on ingredients” of this document).
- Remain at the disposal of the fire brigade when they arrive.
- Do not extinguish battery fire yourself unless you have specialized equipment and attended the training. The risk of toxic vapour inhalation and severe burns is too high.
- To minimise damage to company goods and property before the fire brigade arrives use prescribed by local fire prevention inspector personal protective equipment when extinguishing a fire. Prevent the inhalation of toxic gas and carry out extinguishment from the windward.
- The fire should be extinguished by the fire brigade with suitable extinguishing media.

Additional advice for firefighters

- Use self-contained breathing apparatus

- Wear a fully protective suit
- Cool containers at risk with water spray jet
- Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

An electrolyte is a chemical substance contained in the battery cells. Due to mechanical damage, the substance may leak outside the battery enclosure. Electrolyte leaking from battery emanates a typical sweet odour. When it is detected the following steps apply:

- Lock - off contaminated area.
- Use personal protective equipment: safety glasses, gloves, solvent-resistant protective clothing.
- Keep people away and stay on the upwind side.
- Evacuate people to a safe distance of at least 50 meters.
- Use breathing apparatus if exposed to vapours/dust/aerosol.
- Call for medical help and provide first aid (see chapter “First - aid measures”).
- Call the fire brigade immediately after you detect the leakage.
- Take off clothes that have absorbed electrolyte and isolate contaminated clothing and shoes in a glass container.
- Do not touch or walk through spilled substance.
- Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area) if possible.
- If you are in possession of proper personal protective equipment as prescribed by local fire protection regulations you may absorb the substance with a sorbing agent such as earth, sand or other non-combustible, non-conductive material and dispose of it in a glass container or plastic bag.
- Inform fire brigade about the substance involved so they can efficiently fight fire or get rid of chemical substance residue.
- Leaking batteries and contaminated absorbent material should be placed in insulating containers or left outside the building for vapour to escape.
- Inform manufacturer.

6.2. Environmental precautions

Do not discharge leakages into the drains/surface waters/groundwater.

The contents of chemical modules are slowly bio-degradable as stated by the cell manufacturer.

6.3. Methods and material for containment and cleaning up

- Take up mechanically.
- If you are in possession of proper personal protective equipment as prescribed by local fire protection regulations you may absorb the substance with a sorbing agent such as earth, sand or other non-combustible, non-conductive material and dispose of it in a glass container or plastic bag.
- Dispose of absorbed material in accordance with the regulations.
- Leaking batteries and contaminated absorbent material should be placed in insulating containers or left outside the building for vapour to escape.

6.4. Reference to other sections

7. Handling and storage

7.1. Precautions for safe handling

Precaution measures concerning battery placement as well as storage area conditions are described in the subsection below.

Due to the weight of batteries, for moving them inside storage it is recommended to use a forklift.

To facilitate the lifting batteries should be placed in UN certified boxes.

7.2. Conditions for safe storage, including any incompatibilities

Precautions for safe handling

Be sure to comply with all the items described in the delivery specification and manual including below:

- Person who handles the battery is sure to take off metal articles such as a watch, put on protective gloves, and safety shoes.
- When connecting the cable to the battery be sure to use an insulated tool.
- Do not disassemble or modify the battery.
- Do not short circuit (+) and (-) terminals with conductive material.
- Do not throw the battery into the fire, or expose it to heating.
- Do not use or leave the cell near a fire or in a very hot place.
- Do not drive nails in the battery, or strike it with a hammer, or step on it in fear of deformation or damage to protection mechanisms.
- Do not expose the battery to strong shocks due to fall, or throw it.
- Do not use the cell exposed to shocks due to fall.
- Do not allow the battery to become wet with water or seawater or rain.
- Do not install the battery backwards so that the polarity is reversed.
- Do not charge nor discharge under unspecified conditions.
- Do not connect several batteries in series or parallel.

- When handling the battery, be sure to comply with the specified rules to connect the battery.
- Do not use or test damaged battery.
- When disorder in the cell or misuse causes abrupt battery temperature rise with gas emission or smoke or fire, cool it with sand or powdery fire extinguisher or CO2 extinguisher.
- During long-term storage be sure to keep the battery voltage properly in order not to make it below specified voltage. Before the start of operation in the vehicle, terminal voltage has to be checked by CAN interface if it is in operating range.
- Be sure to store the battery in the place where the battery could not be exposed to a raindrop, avoiding direct sunlight, hot-temperature, high humidity, place of the use of fire.

Handling practices and equipment:

- Storage room should be prepared and equipped according to local fire prevention inspector prescription in compliance with effective local laws. It is recommended that it is well ventilated and dry (explosion venting system), its walls are made of non-flammable materials, and its doors are at least 30-minute-rated fire doors.
- Other flammable materials should not be stored in the same area to prevent spread of potential fire.
- Optimal temperature range for long-term (longer than 14 days) storage is +15°C to + 25°C. Storage outside this range is not recommended.
- Allowed temperature range for short-term (≤ 14 days) storage is -30°C to 40°C.
- Humidity in storage place should not exceed 80%.
- Storage area should be prepared and equipped according to local fire prevention inspector prescription in compliance with effective local laws. It is recommended that the area has: C02, metal fire-ex powder or dry powder fire extinguishers (2 pieces, capacity – 6 kg) and personal protective equipment: respirators, dielectric insulating gloves. Water extinguishers are forbidden.

Stored batteries – properties, storing position, protection

- It is recommended to store each battery pack in a UN38.3 certified box (the type of box for safe storage should be determined by local fire protection inspector or other authorised person) to isolate it from potential adverse thermal conditions and/or on a separate wooden pallet to enable quick transfer of battery to an isolated area/outdoors in case of internal heat/fire/short circuit symptoms.
- Battery connectors not protected against environmental factors (e.g. rain, snow, humidity) especially when signal and power harnesses have been disconnected, need to be covered with compatible hoods, counter connectors or connector caps. Remember to protect the detached power harness connectors with compatible hoods, counter connectors, connector caps.
- Lithium-ion battery should be stored being charged to 30%-50% of SOC. After 6-month storage battery SOC needs to be checked and recharged if needed.
- Li-ion battery self-discharge is around 2% of charge loss a month.
- Battery should be stored in the target operating position.
- Do not store adjacent to combustible materials.
- Protect from heat and overheating.
- Protect from sun.
- Store in a dry place.
- Ensure battery terminals are protected during storage.
- Protect from atmospheric moisture, water and contamination.

Storage of batteries to be diagnosed

Batteries that await manufacturer diagnosis, especially after a road accident or mechanically damaged, should be stored in a separate area/room in UN certified transport boxes.

Storage of batteries to be repaired

Batteries qualified for repair can be safely stored in UN certified boxes in the same room with new batteries.

Storage of used batteries

Used battery - is a battery that is no longer effective in terms of power-supplying its target application. In order to classify the battery as “used” , a manufacturer’s diagnosis is not required. Used batteries can be safely stored in the same room with new batteries.

Storage of damaged batteries

Immediately isolate the batteries in a safe place if, during operation, they emit an unusual smell, develop heat, change shape/geometry, emit disturbing sounds or behave abnormally which may indicate a problem. Additionally damaged batteries must be stored in a well-ventilated area and protected from third-party access. They must be separated from other batteries. If there is a fire hazard involved - inform the fire brigade and the manufacturer immediately. The storage area must be equipped with fire extinguisher applicable for this battery.

For safety reasons damaged batteries/cells should not be stored at user’s facilities. They should be disposed of in compliance with applicable regulations. Batteries qualified as permanently damaged shall be transported to the nearest waste recycling point.

7.3. Specific end use(s)

See product use, section 1.2

8. Exposure controls and personal protection

Exposure controls

Applicable control measures, including engineering controls:

- It is recommended to equip storage and mounting area with proper ventilation system in compliance with existing local fire protection regulations.
- Walls of storage area should be non-flammable, doors should be at least 30-minute rated fire doors.
- If not agreed otherwise any mounting, service and repair works should be performed by authorised and trained personnel only.
- Operation manual describing safety procedures is available to handling personnel/ bus driver at all times.
- Battery pack is contained in insulating housing.
- Battery packs are transported and stored in insulating UN38.3 certified boxes.

Personal protection measure for each exposure route:

Personal protective equipment should be compliant with existing local fire protection regulations. The below sections contain battery manufacturer recommendations.

PPE for electrolyte exposure and toxic fumes exposure:

- Lock off the contaminated area
- Use personal protective equipment: safety glasses, gloves, solvent-resistant protective clothing
- Keep people away and stay on the upwind side
- Use breathing apparatus if exposed to vapours/dust/aerosol

PPE for electric shock

dielectric insulating gloves, insulating shoes

9. Physical and chemical properties

9.1. Lithium-ion Cell

Appearance

Lithium Ion Rechargeable Cell（Prismatic）

Nominal Voltage

Single cell - 3.7 V

Appearance

Lithium Ion Rechargeable Cell is stored in the plastic resin case or tube.

Nominal Voltage

The voltage value depends on the number of built-in batteries used in battery modules and battery pack.

Electrolyte

Appearance

Transparent liquid.

Odour

Smells like medical ether, a little bit sweet.

Odour threshold

No available information.

pH

No available information.

Freezing/melting point

No available information.

Boiling point

No available information.

Flash point

No available information.

Evaporation rate

No available information.

Flammability (solid, gas)

H226 Flammable liquid and vapour.

Upper/lower flammability or explosive limits

No available information.

Vapour pressure and reference temperature

No available information.

Vapour density

No available information.

Relative density

No available information.

Solubility in water

No available information.

Partition coefficient: n-octanol/water

No available information.

Auto-ignition temperature

No available information.

Decomposition temperature

No available information.

Viscosity

No available information.

9.2. Battery pack

Appearance

Rectangular painted stainless steel (1.4301) case containing electronics and lithium-ion cells.

Nominal Voltage

All variants – 222 V

Minimum Voltage

All variants – 180 V

Maximum Voltage

All variants – 261 V

Nominal energy

All variants – 39,29 kWh

Nominal capacity

All variants – 177 Ah

Storage temperature

All variants – -30 to +55 °C

10. Stability and reactivity

10.1. Reactivity

No available information.

10.2. Chemical stability

Product is stable under conditions described in section “Handling and storage”.

10.3. Possibility of hazardous reactions

H319 Causes serious eye irritation

H317 May cause an allergic skin reaction

H411 Toxic to aquatic life with long lasting effects

H312 Harmful in contact with skin

H372 Causes damage to organs through prolonged or repeated exposure

H318 Causes serious eye damage

H314 Couses severe skin burns and eye damage

H301 Toxic if swallowed

H335 May cause resporatory irritation

H315 Causes skin irritation

10.4. Conditions to avoid

- Heat above 70°C
- Deformation-, mutilation-, crush- risk encouraging conditions
- Overcharge
- Short circuit
- Exposure to humid conditions over a long period (greater than 6 months)

10.5. Incompatible materials

- Oxidizing agents
- Alkalis
- Water

10.6. Hazardous decomposition products

- toxic fumes as the result of burning of chemical content of battery cells
- may form peroxides

Item	After thermal event [%]
CH4	4,00
C2H4	6,60
C2H2	0,04
C2H6	1,51
C3H8	0,41
C3H6	0,15
C3H4	0,01
i-C4H10	3,42
n-C4H10	2,77
I-C4H8	0,09
N-C4H8	0,18
C4H6	0,10
trans-C4H8	0,56
cis-C4H10	0,01
1,3-C4H6	0,01
H2	16,33
CO2	34,87
O2	1,17
N2	8,66

CO	19,60

11. Toxicological information

Not applicable unless the battery is mechanically broken.

11.1. Information on toxicological effects

Vapor generated from burning batteries, may make eyes, skin and throat irritate.

Not required under normal conditions.

12. Ecological information

12.1. Toxicity

Composiition of Li-ion cell:

Carbon LD50 :8000 mg/kg（Mouse transoral）
Lithium LD50 :1000 mg/kg（Lntraperitoneal in mice）
Ethylene carbonate LD50：10 g/kg（Rat's mouth）
Skin irritation or corrosion：nothing
Eye irritation or coeeosion：nothing
Respiratory or skin allergy：nothing
Mutagenicity of germ cells：nothing
Carcinogenicity：
Carbon-According to ACGIH, IARC, NTP Not listed as a carcinogen
Copper- According to ACGIH, IARC, NTP Not listed as a carcinogen
Graphite-IARC: International research institutes have not confirmed that products containing 0.1% or more of the substance may be identified as human carcinogens.
Polyvinylidene fluoride - IARC: International research institutes have not confirmed that products containing 0.1% or more of the substance may be identified as human carcinogens.
Aluminum- According to ACGIH, IARC, NTP Not listed as a carcinogen
Ethylene carbonate- IARC: International research institutes have not confirmed that products containing 0.1% or more of the substance may be identified as human carcinogens.
Lithium- IARC: International research institutes have not confirmed that products containing 0.1% or more of the substance may be identified as human carcinogens.
Reproductive toxicity：No data
Specific target organ system toxicity（one contact）：No data
Specific target organ system toxicity（Repeated contact）：No data
Inhalation hazards：No data
Pharmacokinetics, metabolism and distribution information：No data

12.2. Persistence and degradability

Not applicable.

12.3. Bioaccumulative potential

Not applicable.

12.4. Mobility in soil

Not applicable.

12.5. Results of PBT and vPvB assessment

Not applicable.

12.6. Other adverse effects

Ecological data of complete product are not available.

Do not discharge product unmonitored into the environment or into the drainage.

13. Disposal considerations

13.1. Waste treatment methods

Permanently damaged battery should not be reprocessed along with residential garbage. The disposal of lithium-ion batteries shall be carried out in compliance with the relevant laws and regulations of the country where the batteries are in service.

Note to vehicle manufacturer: report any permanently damaged/used batteries to ICPT S.A. at logistyka@icpt.pl and +48 22 758 68 65. Please refer to battery serial number, type, and year of production or purchase order number to facilitate the process. Mechanically damaged batteries should be kept outdoors at safe distance from other devices and vehicles.

Information from module manufacturer: it is recommended to fully discharge the battery, use up the metal lithium from the inside of battery.

14. Transport information

Land, air, and sea transport of lithium batteries is regulated by local and international laws.

14.1. UN numer

As lithium-ion battery contains lithium, it is defined as dangerous good number UN3480, class 9 (Miscellaneous dangerous substances and articles, including environmentally hazardous substances) according to classification adopted in document „Recommendations on the transport of dangerous goods Vol. I". Criteria of UN „Manual of tests and criteria", section 38.3. as well as other effective laws are applied to transport of lithium-ion batteries. It refers to transport across Europe itself and all around the world.

14.2. UN proper shipping name

The battery is made from YXE8A3-174Ah-1P4S-355 modules which are UN38.3 certified.

14.3. Transport hazard class(es)

Battery packs belong to ADR Class 9A - miscellaneous dangerous goods.

14.4. Packing group

Battery should be packed into appropriate and dedicated packaging which meets regulations specified in Packing Instruction P903, in document „Recommendations on the transport of dangerous goods Vol. II". Packaging needs to meet the quality requirements of packing group II.

14.5. Environmental hazards

Please refer to sections "Composition/information on ingredients" and "Ecological information".

14.6. Special precautions for user

Before unpacking

Before unpacking make sure that:

- the packaging is not damaged in any way,
- the package content reflects the waybill list and your order specification.

The connectors' covers should not be removed from battery from the moment of unpacking of the battery till its connection to charging equipment or its placement in target device/vehicle.

General transport and lading information

For land and sea transport of prototype li-ion batteries (up to 200 pieces of a given type) it is required to attach to the parcel the battery data sheet, MSDS, declaration of qualified institution dealing with packing and clearance of dangerous goods e.g. DGM.

ICPT batteries have necessary approval of the Civil Aviation Authority of Poland. Air transport is possible via cargo aircraft. It is required to attach to parcel the battery data sheet, MSDS, and declaration of qualified institution dealing with packing and clearance of dangerous goods. The permission is not effective in case of transport to the USA. For the time of air transport each battery should be charged up to 30% of SOC in compliance with IATA Packing Instruction PI 965, chapter 11.

For sea transport of dangerous goods the guidelines of International Maritime Dangerous Goods Code (IMDGC) apply.

If possible protect battery connectors against water and short circuit with connector covers or counter connectors. Packaging should protect battery from mechanical damage and short circuit in transport.

Out of order batteries, which have been qualified for repair by authorised ICPT S.A. service team, have to be transported in UN certified boxes, packing group II.

15. Regulatory information

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

Land, air, and sea transport of lithium batteries is regulated by local and international laws such as:

- "Recommendations on the transport of dangerous goods"
- UN "Manual of tests and criteria"
- IATA "Dangerous Goods Regulation"
- "International Maritime Dangerous Goods Code" (IMDGC).

15.2. Chemical safety assessment

No information available.

16. Other information

General disclaimer

This information contained in this safety instruction represents the best information currently available to ICPT based on its knowledge and experience as the manufacturer of the battery systems. Please follow strictly this instruction to ensure a safe usage, storage and handling of the product. It is advised that users of ICPT products take any suitable precautions to protect their life and health. ICPT does not accept any liability for any damages resulting from faulty use, unintended use or not following this safety instruction when using the product. In case you notice any irregularities of the product, please contact ICPT immediately on our emergency phone number. Should you have any questions related to the usage of the product please send us an e-mail at support@icpt.pl.

ICPT reserves the right to modify or update this safety instruction in order to adjust it to the laws, regulations and safety requirements.