

Section 1. Product Name and Company Identification

Product name	Lithium hybrid Capacitor
Model name	Vina Pulse Capacitor (VPC)
Description	Commercial Product
Company	Vinatech Co., Ltd
Address	15 Unam-ro, Deokjin-gu, Jeonju-si, Jeollabuk-do, Korea
Tel No.	+82 63 715 3020
Tel:	+82 63 715 3021

Section 2. Information on Composition and Ingredients

Component	Elements	Content
Anode	Active carbon / Active Material	15~20%
Cathode	Carbon	5~10%
Electrolyte	Lithium salt / Eater carbonate	20~30%

Section 3. Hazard Identification

This product is considered a manufactured article and presents negligible health hazards under typical use conditions. Misuse of this product, such as deliberate destruction, overcharging or heating, may release internal components contained within the sealed case.

The internal components of this product are combustible and may be ignited if a particular failure mode occurs and they are exposed to an ignition source or if subjected to direct flame. If the article is involved in a fire, the chemicals contained in the case may decompose and produce toxic gases (e.g. nitrogen oxides, carbon oxides, hydrogen cyanide, hydrogen fluoride and other miscellaneous fluoride and boron compounds). During a fire involving this product, care should be taken to avoid inhalation of fumes. Misuse of this product, such as overcharging, may cause the article to vent which could then cause the release of these toxic fumes as well.

When the capacitor burns, the generated steam might stimulate eyes, the skins, and throats.

Section 4. First Aid Information

In general use, the chemical composition is not exposed because it is sealed up in the cell. Treatment when electrolyte leaks from the product is described due to some abnormalities.

Inhalation : Take a breath of fresh air at once, and see a medical doctor immediately. If appropriate procedure is not taken, the respiratory organ stimulation might be caused.

Skin contact : Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.

Eye contact : Flush the eyes with plenty of water for at least 15 minutes immediately, without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.

Section 5. Fire Fighting Measures

SUITABLE FIRE EXTINGUISHING MATERIALS: The following fire extinguishing materials are suitable for fires involving this product:

Water Spray: OK (cooling only and only if products are uncharged)	Dry Chemical: OK	Carbon Dioxide: OK
Foam: OK	Halon: OK	Other ABC Type: OK

UNSUITABLE FIRE EXTINGUISHING MATERIALS: None known.

Section 6. Accidental Release Measures

Wipe off with a dry cloth and it keeps away from the fire to prevent the ignition.

Section 7. Handling and Storage

[Handling]

Do not short-circuit the product or reverse the anode and cathode terminal connections.

Do not disassemble, change the product or damage it with sharp objects such as knives or nails.

Do not hit the product with a hammer or similar object.

Do not drop the product or give excessive shock or vibration.

[Storage]

Do not use or store the product in a place where conditions are available; High temperature, direct sunlight, heaters or other heat sources near, where humidity is high, condensation or freezing.

Do not use or store the product in an environment exposed to liquids such as solvents or oils.

Do not use or store the product in an environment full of oil-based gas components.

Do not use or store the product in an environment exposed to sea water or salt-filled air.

Do not use or store the product in an environment full of corrosive gases.

Section 8. Exposure Controls / Personal Protection

As an intact, sealed, manufactured article, exposure to individual components is not possible. If this product leaks, fails, is cut or is otherwise manipulated in such a way that the contents are released, exposure to the internal components is possible. The only internal component that is dispersible is the electrolyte.

Section 9. Physical and Chemical Properties

APPEARANCE (COLOR, PHYSICAL FORM, SHAPE): Finished commercial product. Various sizes and shapes.

VOLATILE ORGANIC COMPOUND (VOC) CONTENT: Not applicable. Product not regulated for VOC content at state or federal level.

Section 10. Stability and Reactivity

STABILITY: Stable under condition of normal temperature.

DECOMPOSITION PRODUCTS:

Combustion: Products of thermal decomposition can include toxic gases (e.g. nitrogen oxides, carbon oxides, hydrogen cyanide, hydrogen fluoride and other miscellaneous fluoride and boron compounds).

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:

Electrolyte Solution: Strong reducing agents, strong oxidizers, strong acids, diphenyl sulfoxide, trichlorosilane, n-fluoro compounds, nitrating agents.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Avoid exposure to or contact with sparks, flames, or other sources of ignition, extreme temperatures, and incompatible chemicals.

Section 11. Toxicological Information

This product is a finished commercial product. It is classified as an "article" and exempt under the federal OSHA Hazard Communication standard.

CHRONIC EFFECTS: No chronic health effects reported.

TARGET ORGANS: No target organ effects reported.

CARCINOGENICITY: This finished consumer product is not carcinogenic.

Section 12. Ecological Information

No Ecological effects reported.

Section 13. Disposal Considerations

Dispose in accordance with federal, state, local regulations and permits. Neither anode nor cathode may cause short circuit, the terminal is covered and insulated with the tape etc.

Section 14. Transport Information

UN classification : Class 9

UN No. : Unapplied (UN3508 Unapplied)

International regulation	International Civil Aviation Organization (ICAO)	Unapplied
	International Air Transport Association (IATA)	Unapplied
	International Maritime Organization (IMO) International Marine Dangerous Goods Regulations (IMDG Code)	Unapplied
	United States Department of Transportation (US. DOT)	Unapplied

Pack in the exclusive use tray individually partitioned or it individually packs in a plastic bag to prevent external short circuit. Pack by a packing material with enough strength not to be damaged by the vibration, impact, fall and pile while transporting it. Avoid the condition which generated the high temperature, high humidity, and the dewfall.

Section 15. Regulatory Information

- IATA Dangerous Goods Regulations (60th edition, December 2018)

Currently, this lithium ion capacitors are not restricted as dangerous goods in 2018 IATA Regulations. However, as air transportation regulations may be changed, it is recommended that you check the regulations each time you are transporting lithium ion capacitors and use appropriate transportation methods.

- Regulations for the Carriage and Storage of Dangerous Goods by Ships

Transportation and storage of dangerous goods by vessels must be pursuant to the Regulations for the Carriage and Storage of Dangerous Goods by Ships.

- Ship Safety Act

The electrolyte solution used is classified as a flammable liquid. Observe the regulations in the Ship Safety Act.

- Civil Aeronautics Act

The aviation regulations during transportation must be pursuant to the regulations in the Civil Aeronautics Act.

- Waste Management and Public Cleansing Act

Disposal must be commissioned to a special controlled industrial waste disposal contractor. Observe the regulations stipulated by individual municipalities.