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CHEMICAL INDUSTRY STANDARD

OF THE PEOPLE'S REPUBLIC OF CHINA

ICS 71.060.50

G 12

Filing No.: 50870-2015

HG/T 4066-2015

Replacing HG/T 4066-2008

Lithium hexafluorophosphate

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Issued on: July 29, 2015

Implemented on: January 01, 2016

Issued by: Ministry of Industry and Information Technology of PRC

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Lithium hexafluorophosphate

WARNING: Lithium hexafluorophosphate absorbs moisture very easily, to generate hydrofluoric acid, which is highly corrosive. Some of the reagents used are toxic or corrosive, so wear protective equipment and operate in a fume hood! If splashed on the eyes or skin, immediately flush with water for more than 15 minutes and seek medical treatment immediately. When using flammable materials, it is strictly forbidden to use an open flame for heating.

1 Scope

This standard specifies the requirements, test methods, inspection rules, marking, labeling, packaging, transportation, storage for lithium hexafluorophosphate.

This standard applies to lithium hexafluorophosphate. This product is used for the electrolyte salt of lithium ion battery electrolyte and lithium ion supercapacitor electrolyte.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB 150.1 Pressure vessels - Part 1: General requirements

GB 150.2 Pressure vessels - Part 2: Materials

GB 150.3 Pressure vessels - Part 3: Design

GB 150.4 Pressure vessels - Part 4: Fabrication, inspection and testing, and acceptance

GB 190-2009 Packing symbol of dangerous goods

GB/T 191-2008 Packaging - Pictorial marking for handling of goods

GB/T 6678 General principles for sampling chemical products

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

5.8 Determination of chloride (as Cl) content

The determination shall be carried out, according to the provisions of 3.4 or 3.5 in GB/T 19282-2014. The ion chromatography, which is specified in 3.4, shall be the arbitration method.

5.9 Determination of cation content

It is determined, according to the provisions of 3.3 in GB/T 19282-2014. Determined cations include arsenic (As), calcium (Ca), cadmium (Cd), Chromium (Cr), Copper (Cu), Iron (Fe), Potassium (K), Magnesium (Mg), Sodium (Na), Nickel (Ni), Lead (Pb), Zinc (Zn).

6 Inspection rules

6.1 This standard adopts type inspection and exit-factory inspection. Type inspection and exit-factory inspection shall meet the following requirements:

- a) All the index items, which are specified in the requirements, are type inspection items. Under normal circumstances, at least one type inspection is carried out every month.

Type inspection must be carried out, in one of the following situations:

- When the key equipment and production processes are updated;
- When the main raw materials are changed;
- When the production resumes after suspension;
- Where there is a big difference from the last type inspection;
- When specified in the contract.

- b) Lithium hexafluorophosphate, dimethyl carbonate (DMC) insoluble material, moisture, free acid, calcium, iron, potassium, sodium content, which are specified in the requirements, are exit-factory inspection items, which shall be inspected batch by batch.

6.2 The production enterprises take the lithium hexafluorophosphate, which are continuously produced by the same materials, under basically the same production conditions, as a batch. Each batch of products does not exceed 5 t.

6.3 The number of sampling units shall be determined, in accordance with the provisions of GB/T 6678. Sampling is carried out in the dew point ≤ -40 °C environment; however, if there is no environmental condition that the dew point ≤ -40 °C, the sampling cylinder can be used for airtight sampling. The sampling size of each batch of

products is not less than 250 g AND stored in airtight sample bottles. The product name, batch number, sampling date, the name of the sampler shall be indicated on the sample bottle. One bottle is for inspection; the other bottle is sealed by aluminum foil and placed in a cool, dry place. The storage time is determined by the manufacturer, according to actual needs.

6.4 If one of the inspection results does not meet the requirements of this standard, it shall be re-sampled from twice the amount of products for re-inspection. In the re-inspection result, even if only one index does not meet the requirements of this standard, the whole batch of products is considered unqualified.

6.5 Use the rounding value comparison method, which is specified in GB/T 8170, to judge whether the test results conform to this standard.

7 Signs, labels

7.1 There shall be firm and clear signs on the outer packaging of lithium hexafluorophosphate products, which indicate the following information: manufacturer's name, address, product name, net content, batch number or production date, shelf life, this standard number, "toxic substances" sign specified in GB 190-2009, the "Avoid rain" and "Avoid sun" signs specified in GB/T 191-2008.

7.2 Each exit-factory batch of lithium hexafluorophosphate products shall be accompanied by a quality certificate, which indicates the following information: manufacturer's name, factory address, product name, net content, batch number or production date, shelf life, product quality certificate that conforms to this standard, this standard number.

8 Packaging, transportation, storage

8.1 Lithium hexafluorophosphate shall be packaged under airtight and dry conditions. For products, which have a net content of not less than 25 kg, they are packaged in stainless steel drums, that meet the requirements of GB 150.1 ~ 150.4. The stainless steel drums shall have a pressure resistance greater than 0.6 MPa, be filled with inert gas (air pressure not less than 30 kPa); there shall be no corrosion traces at the quick-connect joints. It shall add a protective cover. For products, which have a net content of not more than 10 kg, they are packaged in anti-corrosion bottles and vacuum-packed in aluminum-plastic film bags outside. It can also be packaged, according to user requirements.

8.2 It is strictly forbidden to be inverted during transportation. There shall be a cover to avoid exposure to sunlight and rain; it shall prevent the package from being damaged.

8.3 Keep the original packaging drum intact and airtight; place it in a cool, dry and well-

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