The exemption application of perfluorosulfonic acid(PFSA) resins and perfluorocarboxylic acid(PFCA) resins and ion exchange membranes for chlor-alkali industry

Ningxia Huayu Chemical Co., Ltd, which founded in December 2009, is located in Zhongwei Industral Park, Shapotou District, Zhongwei City, Ningxia Hui Autonomous Region. It was jointly established by Jiangsu Suhua Group Co., Ltd, Jiangsu Suhua Group Zhangjiagang Co., Ltd, and Jiangsu Xinyi Huayi Investment Management Co., Ltd. Our company covers an area of 2000 acres, with more than 550 employees, and it is equipped with a complete public works as well as environmental protection equipment. The products of the company cover the fields of organic chemical industrry, clean energy, insulation and high temperature resistant materials, etc., providing basic industrial raw materials for local and social security. It created a large number of jobs and reduced the number of people living in poverty. Its products are mainly exported. As the first supplier of many international manufacturers such as 3M, BASF and Bayer, our company has promoted the progress of global industrial system, made due contributions to global energy conservation, emission reduction and carbon neutrality.

In the industrial system of Ningxia Huayu Chemical Co., Ltd, the production of chlor-alkali by ion exchange membrane method is the most front-end and basic part. It is the most important link in the entire company’s industrial chain, which provides basic raw materials for downstream printing, dyeing and chlorine consuming fine chemicals. As the basic condition of our company's operation and survival, the production of chlor-alkali by ion exchange membrane method is the basic condition of providing high-quality products to the world, and the ion exchange membrane process has huge economic and safety advantages compared with the diaphragm process. Different from the ion exchange membrane method, the main equipment used in the diaphragm method is a diaphragm electrolyzer, which is characterized by a porous permeable diaphragm separating the anode chamber and the cathode chamber, and the

diaphragm prevents the passage of gas, but only allows water and ions to pass. This can not only prevent the hydrogen produced by the cathode from mixing with the chlorine gas produced by the anode to cause an explosion, but also avoid the reaction of chlorine gas with sodium hydroxide to produce sodium hypochlorite and affect the quality of caustic soda. However, the investment and energy consumption of the diaphragm method is high, and the product caustic soda will contain impurities salt. At the same time, the asbestos diaphragm is short-lived and carcinogenic, seriously polluting the environment. In addition, compared with ion exchange membrane method, the main equipment of the mercury method, electrolytic cell, is composed of electrolytic chamber and mercury chamber, which is characterized by mercury as the cathode, obtaining electrons to produce liquid sodium and mercury alloy. In the mercury lysis chamber, sodium amalgam reacts with water to produce sodium hydroxide and hydrogen. The biggest disadvantage of mercury method is that it will bring mercury pollution to the environment, so this method has been gradually reduced, and there have been many pollution accidents around the world (a major pollution poisoning accident occurred in Japan).

a selective ion exchange membrane is used in the ion exchange membrane method to separate the anode chamber and the cathode chamber, and the cation exchange membrane only allows Na^+ to pass through, while Cl^-, OH^- and gas cannot pass through. This can not only prevent the hydrogen produced by the cathode from mixing with the chlorine gas produced by the anode to cause an explosion, but also avoid the reaction of chlorine gas with sodium hydroxide to produce sodium hypochlorite and affect the quality of caustic soda. Ion exchange membrane method is superior to diaphragm method and mercury method in terms of construction cost, power loss, product quality and solving environmental pollution, etc. It is recognized as the low energy consumption and green development direction of modern chlor-alkali industry.

In view of the above, we request a permanent exemption for the following products.

Monomers: tetrafluoroethylene(CAS:116-14-3), Perfluoro (4-methyl-3,6-dioxaoct-7-ene) sulfonyl fluoride (PSVE)(CAS:16090-14-5), Methyl perfluoro (5-methyl-4,7-dioxane-8-ethyl enoate) (PCVE)(CAS:63863-43-4) and so on.

Polymers：Perfluorosulfonic acid resin；Perfluorocarboxylic acid resin.

Membrane products：Perfluoride ion exchange membrane for chlor-alkali industry.

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