

PFAS

Application for an exemption request for the draft PFAS

Product name:

**perfluorosulfonate resin, perfluorosulfonate
proton exchange membrane**

Submitter:

**Shanghai Jiehydrogen Technology Co.,
LTD**

2023 8 23

Date: August

23,2023

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PFAS

Product Description: PFSA resin, PFA proton exchange membrane Request exemption: We request the above PFSA proton exchange membrane products in the draft PFAS exemption.

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Reason for exemption: Shanghai Jie Hydrogen Technology Co., Ltd. is an enterprise engaged in the research and development, production and sales of hydrogen fuel cell membrane electrode components, reactors and systems. We use PFAS substances such as perfluorosulfonic acid resin and proton exchange membrane with perfluorosulfonate resin and polyTFE as the main raw

materials to realize the proton conduction of the core fuel cell membrane electrode and the unique requirements of isolation of Yin and Yang gas. Since it takes longer for the replacement of the resin and proton exchange membrane to be certified for this purpose, we request that the resin and proton exchange membrane used in the fuel cell be banned from PFAS Order exemption.

1. 在 30°C 及 100%RH 条件下，将 12 克样品置于 90% 相对湿度环境中，保持 131 小时。

In the fuel cell, perfluorosulfonate resin and perfluorosulfonate proton exchange membrane mainly realize the excellent proton conductivity and chemical stability required by the fuel cell membrane electrode. At present, the market can obtain the alternative of

hydrocarbon resin and hydrocarbon polymer proton exchange membrane, mainly including sulfated polyimide, sulfated polyaromatic ether ketone, etc., but the global market share is very low, perfluorosulfonic acid resin and perfluorinated sulfonic acid proton membrane is still the first material of the major fuel cell manufacturers, compared with perfluorinated resin, hydrocarbon resin has low proton conductivity, poor chemical durability [1 under the condition of 30°C, 100% RH, hydrocarbons The proton conductivity of the sub-exchange membrane is only 50% of that of the perfluorinated membrane 12. Fenton experiments showed that after one hour of chemical durability test, decomposition 131 appeared, and perfluorosulfonic acid membranes usually retain more than 90% after Fenton test. The above test results show that the use of hydrocarbon resin and hydrocarbon proton exchange membrane will lead to the power generation and the service life of fuel cell, which restricts the large-scale application and development of hydrogen energy as a clean energy and proton exchange membrane

fuel cell.

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In conclusion, the replacement of perfluorosulfonate resin and proton exchange membrane does not exist, or cannot be replaced in practical application, so we suggest that this material be exempted from the PFAS ban.

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[2]Emmanuel Ogungbemi,Oluwatosin Ijaodola,etc.Fuel cell membranes

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[3] Zhang Z HXuTW.Proton-conductive polyimides consisting of

naphthalenediimide and sulfonated units alternately segm

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