

# 二氟化氙 Xenon Difluoride

## 1、产品介绍 Product introduction

二氟化氙 ( $\text{XeF}_2$ )，又称二氟代氙，分子量为 169.30，是一种无色固体，在室温下容易升华而形成透明晶体。二氟化氙在中性或碱性溶液中分解，在酸性溶液中较为稳定，水溶液有刺激气味。二氟化氙蒸汽是无色的，具有令人发呕的恶臭。在电子工业中， $\text{XeF}_2$  常被用作硅的蚀刻气体，由于  $\text{XeF}_2$  和硅的化学反应是自发反应， $\text{XeF}_2$  对硅的腐蚀工艺具有非常高的选择性，在  $\text{XeF}_2$  对硅进行腐蚀过程中， $\text{XeF}_2$  气体通过自由扩散到硅衬底表面，并与最外层硅原子发生化学反应生成气态 Xe 和气态  $\text{SiF}_4$ ，从而实现对硅的腐蚀。

Xenon difluoride ( $\text{XeF}_2$ ) is a colorless solid with a molecular weight of 169.30, it is easy to sublimate at room temperature and form transparent crystals. Xenon difluoride decomposes in neutral or alkaline solution, but it is stable in acidic solution and has a pungent odor in aqueous solutions. Vapor of xenon difluoride is colorless and has a disgusting stench. In the electronic industry,  $\text{XeF}_2$  is often used as etching gas of silicon, chemical reaction of  $\text{XeF}_2$  and silicon is spontaneous reaction, corrosion process of  $\text{XeF}_2$  to silicon has high selectivity, in the corrosion process of  $\text{XeF}_2$  to silicon,  $\text{XeF}_2$  gets to the surface of silicon substrate through free gas diffusion, and react with the outermost silicon atoms to generate gaseous Xe and gaseous  $\text{SiF}_4$ , so as to realize corrosion of silicon.

## 2、产品指标 Quality specification

项目 Items	单位 Units	指标 Index
二氟化氙 Xenon difluoride (XeF <sub>2</sub> ) ≥	Vol.%	99.9
钾 Kalium (K) ≤	mg/kg	0.18
钙 Calcium (Ca) ≤	mg/kg	0.15
钠 Sodium (Na) ≤	mg/kg	0.70
镁 Magnesium (Mg) ≤	mg/kg	0.12
铝 Aluminum (Al) ≤	mg/kg	0.17
锌 Zinc (Zn) ≤	mg/kg	0.30
铁 Iron (Fe) ≤	mg/kg	1.21
铅 Plumbum (Pb) ≤	mg/kg	0.07
铜 Cuprum (Cu) ≤	mg/kg	0.05
铬 Chromium (Cr) ≤	mg/kg	0.15
锰 (Mn) ≤	mg/kg	0.04
钼 Manganese (Mo) ≤	mg/kg	0.15
镍 Nickel (Ni) ≤	mg/kg	0.83
磷 Phosphorus (P) ≤	mg/kg	0.14

## 3、产品用途 Application

在电子工业中，XeF<sub>2</sub>常被用作硅的蚀刻气体。此外，二氟化氙是一种选择性很好的氟化试剂，在无机氟化物制备及有机合成中有广泛的应用，但其只有在气相和非水溶液中才具有氟化性质，在水溶液中只能起氧化剂的作用。

XeF<sub>2</sub> is usually used as etching gas of silicon in the electronics industry. In addition, xenon difluoride is a kind of selective fluoridizer, which is widely used in the preparation of inorganic fluoride and organic synthesis, but only in gas phase and non-aqueous solution it can be used as fluoridizer, and only in aqueous solution it can be used as oxidant.

#### **4、包装、贮藏 Packaging and storage**

二氟化氙是一个稳定的化合物，可长期储放于镍制容器或铝合金无缝钢瓶内，包装规格有 100g、500g、1kg、2kg 和 5kg 规格，以满足科研院所及生产型企业的不同要求。具体包装规格可根据用户需求定制更改。二氟化氙储存于阴凉、通风的库房，应与氧化剂、食用化学品、碱金属分开存放，远离火种、热源。

Xenon difluoride is a stable compound and it can be stored in nickel containers or aluminum alloy seamless cylinder for a long time. In order to satisfy the different requirements of scientific research institutes and enterprises, the packaging specifications include 100g, 500g, 1kg, 2kg and 5kg etc. Specific packaging specifications can be customized according to user requirements. Xenon difluoride shall be stored in a shady and ventilated storeroom, separated from the oxidant、 food chemicals、 alkali metal, kept away from fire sources.