Dear authorities in Denmark, Germany, the Netherlands, Norway, and Sweden,

We are users of fluoropolymers in our production and supply customers with polytetrafluoroethylene (PTFE) woven fabric for applications in semiconductor encapsulation and insulation. We encourage the distinction of fluoropolymers from other PFAS substances controlled under the REACH regulation, based on varying risk profiles and purposes.

PFAS substances have widespread applications, with many PFAS substances, including perfluorooctanoic acid (PFOA), being used in the production process of PTFE. It can be said that PFOA is the focal point of this issue.

Although fluoropolymers are classified as PFAS based on their molecular structure, their environmental and toxicological data significantly differ from most low-molecular-weight PFAS substances.

PTFE is an important organic fluorine material that possesses several outstanding properties, making it widely used in various industries and our daily lives.

In the field of semiconductor materials, PTFE offers the following advantages:

1. Utility: PTFE is widely used in the semiconductor industry, including applications in 5G information technology and semiconductor insulation. The strong heat resistance of PTFE allows for long-term use between -190°C and 260°C without damage. Its superior chemical stability prevents erosion by acids, alkalis, and other organic solvents. The excellent electrical insulation properties make it an ideal insulation material. Consequently, the properties of PTFE effectively address many technical challenges in semiconductor applications.

2. Toxicity: The toxicity of PTFE mainly lies in inhalation fever, but it has been determined to have a low health risk due to its chemical stability. PTFE only decomposes into a small amount of tetrafluoroethylene at temperatures exceeding 250°C, and the toxicity of tetrafluoroethylene is minimal. As temperature increases, the decomposition of PTFE accelerates. Only when the temperature exceeds 450°C and the decomposition results in the formation of polytetrafluoroethylene, also known as full-fluorinated isobutylene,

does it become a highly toxic substance. However, using PTFE at 450°C falls under destructive use and is not considered. In most cases, the harm of PTFE to the human body can be neglected. On the other hand, PFOA is relatively more dangerous, with potential carcinogenic effects on multiple organs in the human body and possible harm to the respiratory and reproductive systems.

3. Safety: PTFE is flame retardant, lightweight, and has no recorded incidents of personal injury caused by material decomposition or molecular volatilization.

4. Socioeconomic factors: The lack of viable alternatives to fluoropolymers substances implies high costs when attempting to replace them. Due to complex international supply chains, there is a high risk of unforeseen disruptions and associated economic impacts. Conducting precise impact analyses for each substance requires sufficient time, which unfortunately is currently not granted.

Meanwhile, the German Industry Federation (BDI) states in its assessment of the planned restriction procedure (German language only) that there is a lack of viable alternatives to fluoropolymers substances, resulting in high costs for their replacement. Additionally, complex international supply chains pose a high risk of unforeseen disruptions and associated economic impacts. Conducting precise impact analyses for each substance requires sufficient time, which is currently unavailable.

We make the comments above based entirely on our own business and trade experience, and we declare that these are given voluntarily and honestly.