Annex 7 to Japan 4EE input: Non-Exaustive PFAS Essential Application list C: Explanation of applications in the manufacturing process of electrical and electronic equipment and its components.

	Classification	Intended use in manufacturing process of electrical and electronic equipment and its component	Products used by EU citizens	Parts and products using the relevant process	Why these processes are essential	For electrical and electronic components and their manufacturing processes, performance requirements for materials used to achieve process functions and properties.
1-1	Immersion process	Measurement and inspection of temperature characteristics for temperature measuring components	Medical equipment, automobiles and transportation equipment. Other products in the RoHS Category 1-11 require this process to produce electronic components which controls the operating temperature of EEE with high accuracy and secure its operation.	Electronic components which controls the operating temperature of EEE with high accuracy and secure its operation.	To measure high accuracy temperature characteristics.	Extremely low surface tension and high volatility, together with, High insulation property, high thermal conductivity, low viscosity and high fluidity, In addition, these performance requirements must be achieved at every low as well as elevated temperatures temperatures (operating range: -70°C to 300°C).
1-2		Gross-leak and fine-leak test	Medical equipment, automobiles and transportation equipment. Other products in RoHS categories 1- 11 would need this process to produce hollow structural electronic components for reliable applications.	Hollow structural electronic components such as: Crystal or ceramic resonators, oscillators, and transmitters that produce reference oscillations of ICs that are essential for equipment; and, Sensors that perform sensing essential to the performance of equipment.	Gross-leak test or fine-leak test internal cavitie packaged electronic components to secure that there are no sealing defects for reliable applications.	Extremely low surface tension and high volatility, together with, Inert, low erosion, chemical stability.
1-3		Piezoelectric polarizing	Medical equipment, automobiles and transportation equipment. Other products in RoHS categories 1- 11 would need this process to produce resonators, oscillators, and transmitters and ceramic piezoelectric sensors.	Crystal or ceramic resonators, oscillators, and transmitters that produce reference oscillations of ICs that are essential for equipment. Sensors that perform sensing essential to the performance of equipment.	Polarization process with high voltage application under insulating solvent to make ceramic piezoelectric.	Extremely low surface tension and high volatility, together with, Electrical insulation, chemical stability.
1-4		Measurement and inspection of voltage proof and/or breakdown voltage of electronic components	Home appliances, mobile equipment, EV chargers, factory automation equipment and solar power generation facilities Other products in RoHS categories 1-11 would need this process to produce or develop electronic components to be incorporated into a high voltage applied power supply unit.	high-voltage electronic components	To measure the voltage proof of electronic components used under high voltage conditions to ensure that the required voltage proof is secured under operating conditions.	High insulation, chemical stability that does not react with products, and high volatility that does not contaminate products or tools.
2	Electrode formation process with safety function for film capacitors	Addition of fuse function and insulation function	Film capacitor are widely used in automobiles, transportation equipment, medical equipment, industrial/infrastructure equipment, home appliances, mobile phones, solar power generation, other renewable energies and energy distribution. Other RoHS Category 1-11 products require this process to produce the device film capacitor.	Film capacitors (passive components) with excellent withstand voltage performance, widely used for noise elimination and smoothing used in power supply circuits essential to equipment	In order to prevent devices from igniting due to short circuits due to overvoltage or overcurrent, film capacitors must be precisely formed with electrode patterns that act as fuses. At the same time, it is necessary to form an insulation margin in the electrodes so that short-circuiting between different polarities does not occur inside the capacitor element.	High water and oil repellency, high electrical insulation, and heat resistance that can withstand the electrode formation process ,together with, Long-term reliability (heat resistance, moisture resistance, durability)
3	Electrode formation process of Electric Double Layer Capacitor (EDLC)	Electrode formation for mass storage of electric charge and fast charge/discharge (activated carbon is bound to the electrode foil with binder (PTFE))	Automobiles, industrial equipment, etc. Other RoHS Category 1-11 products require this process to produce the device Electric Double Layer Capacitor (EDLC).	Electric Double Layer Capacitor (EDLC) Passive components	EDLC electrodes are required to store a large amount of electric charge and to achieve fast charging and discharging. At the same time, durability and reliability against vibration and shock are required. Like lithium batteries, binders for electrodes must be chemically stable enough to withstand electrolytes, durable enough to resist electrochemical oxidation and reduction, and heat-resistant. In particular, in order to make a low resistance electrode, it is necessary to form an electrode with a small amount of binder. PTFE is the only binder that satisfies these required performance.	High dispersion for activated carbon and chemical and electrical stability, together with, Heat resistance and durability
4	Coating process of optical film for electronic displays	Prevents localization of electric charges and fires when coating a functional coating layer (insulator) on a base material (insulator) during the production of optical films for electronic displays.	Consumer displays (e.g. TV, PC monitors, car monitors, etc.) Industrial displays (e.g. medical equipment monitors, etc.)	Optical film for electronic displays	Optical films for electronic displays are manufactured by applying a functional coating layer to a base material. Localization of charges occurs when applying a coating layer (insulator) onto a substrate (insulator). Localized charge can cause a discharge fire, so it is necessary to quickly disperse the charge to prevent localization. By adding fluorine materials to the coating layer, the coating layer instantly wets and spreads due to its characteristics of "low surface tension" and "high wettability to the base material", which prevents localization of charges. Fire can be prevented.	Extremely low surface tension