



Development of Non-invasive Wearable Chemical Sensor

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DESCRIPTION

A Chemical Sensor (CS) is a device that transforms chemical information. It is ranging from the concentration of a specific sample component to total composition analysis into an analytically useful signal. Chemical Sensors (CS) are measurement devices that convert a chemical property or physical property of a specific analyte into a measurable signal, whose magnitude is normally proportional to the concentration of the analyte. According to the working principle, the chemical sensor can be classified into many types which includes electrochemical, magnetic, and thermal. The Optical Chemical Sensor (OCS) is based on the changes in optical phenomena arising from the interaction between the analyte and the receiver.

Sensitivity and accelerated cost-effective detection capability of target molecules are the main elements for the development of novel chemical sensors and biosensors for used in a wide range of fields which includes environment, agriculture, and healthcare including clinic diagnosis and treatment of diseases. Chemical Device means any type of device designed as Less Lethal, to be launched as a projectile, in order to cause injury or trauma to the intended target through the action of chemical compounds as an eye, throat, respiratory, and skin irritant, as a means of crowd control. Different Types of Sensors are Temperature Sensor, Proximity Sensor, and Accelerometer sensor, Infrared Sensor, Ultrasonic Sensor, Smoke, Gas and Alcohol Sensor etc.

Transducers are responsible for in taking the chemical information of the interaction between the receptor and analyte converting it into corresponding electrical information. This information is then sent to a computer or a mechanical

component. An enzyme biosensor uses immobilized biocatalysts which include a single or a multiple enzymes, which recognize, and subsequently transform the target analytes or substrates. Several important chemical parameters that are commonly measured which includes pH. Salinity or conductivity. Dissolved oxygen or carbon dioxide. Gas sensor converts the components and concentrations of various gases into standard electrical signals by using specific physical effect and chemical effects. Gas sensor has been widely used in the detection of noxious and harmful gases and natural gas leakage.

Chemical cells use chemical reactions to transfer energy through electricity. The voltage of a chemical cell depends upon a number of factors, including what the electrodes are made from, and the substance used as the electrolyte. A simple chemical cell can be made by connecting different metals in contact with an electrolyte. Electro Chemical (EC) devices either generate electricity from a chemical reaction like a battery or use electrical energy to cause a chemical reaction (like a catalyst). Our researchers are making discoveries in both spheres to make advances in energy storage manufacturing.

A Chemical Sensor (CS) is a device that measures and detects chemical qualities in an analyte and converts the sensed chemical data into electronic data. Chemical Sensor (CS) are used in myriad applications, including medical, nanotechnology and home detection systems i.e. carbon monoxide detectors. There are different types of chemical sensors which are specifically designed for their intended functions but they all share components, receptors and transducers. The receptor is the component of the chemical sensor that comes into physical contact with the analyte and depending on the sensor; the receptor interacts with the analyte in distinct ways.

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