

The Electronic Nose

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An electronic nose is a device that can detect odors. It is not a form of prosthetic piece that will revive one's ability to smell again if that sense has been lost but it does serve a very important purpose. This device is mainly used for the purpose of detecting odors that signify that a dangerous chemical is in the air.

There are 3 parts to electronic noses which are a sample delivery system, detection system, and computing system. The sample delivery system is what takes the sample out of the air. It is then delivered to the detection system which is made up of sensor arrays that react to volatile compounds on contact which causes a physical change in the sensor. From here the computing system compares the change, which is like an odor fingerprint, now in digital format, and compares the results to a library of fingerprints.

This technology is currently being used by NASA on the space station where astronauts are constantly surrounded by ammonia. It runs through pipes and provides a way of taking heat generated in the space station, and emptying it out into space. Although it makes the space station more habitable, it is a dangerous poison that once sensed by humans, is at an extremely dangerous level of concentration.

For this reason, the electronic nose known as the ENose is very important at catching that scent quickly if there happens to be a leak. Ammonia is only 1 of about 40-50 compounds which are necessary on shuttle and space stations, but also must not be allowed to accumulate in a closed environment.

This nose saves lives but it does have other uses, for example, in a quality control lab, where the flavor of a certain product must be consistent, and also to detect contamination or spoilage.

There is also the Opto-electronic Nose, which is said to be "...a digital multidimensional extension of litmus paper." It uses a printed array smaller than a postage stamp made up of nanoporous pigments that change color depending on their chemical environment. It is fairly inexpensive to make and its size allows for it to be placed almost anywhere. No matter which device, it's easy to see how important it is and how many lives these electronics will save in the future.

Works Cited:

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