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CeNS develops advanced ammonia sensing platform to prevent serious health problems

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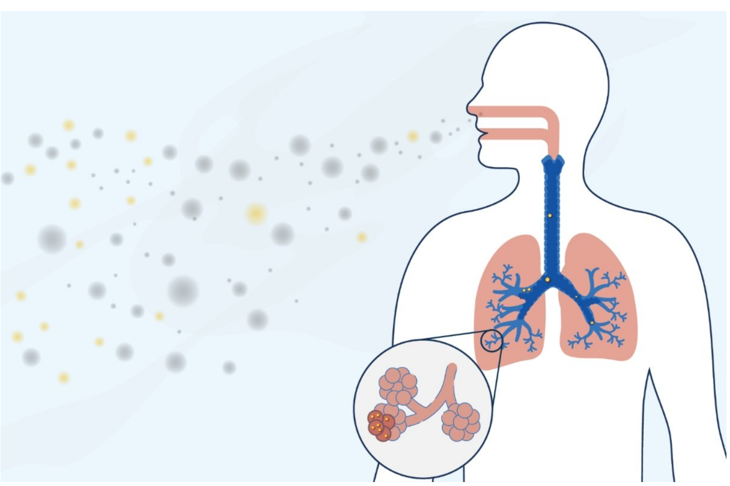
To protect against exposure to toxic gas with the help of new highly sensitive ammonia sensors



Researchers from the Bengaluru-based Centre for Nano and Soft Matter Sciences (CeNS), an autonomous institute of the Department of Science and Technology (DST), have developed an advanced ammonia sensing platform that is capable of detecting harmful ammonia gas even at extremely low concentrations while operating at room temperature.

Ammonia is widely used in industries such as fertilizer production, refrigeration, chemical manufacturing, and agriculture. However, accidental exposure to ammonia can cause severe irritation to the eyes, skin, and respiratory system, while prolonged exposure can lead to serious health problems. Continuous and reliable monitoring of ammonia is therefore essential to ensure workplace safety, environmental protection, and public health.

The sensor has been developed through a controlled surface conversion process, which creates abundant active sites for the adsorption of ammonia as well as enhances charge transport within the sensing layer.

The newly developed sensor performed exceptionally well and successfully detected extremely low ammonia concentrations such as 319 parts per billion (ppb), which is well below the recommended safety limits for commercial workplaces.