

Metal-Organic Frameworks

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About Metal-organic framework:

- These are uniform **structured porous materials** suitable for solid-phase extraction.
- These are the multifunctional coordination polymers.
- **What are 2-dimensional (2D) materials?** These are a class of nanomaterials defined by their typical and unique property of being hardly one- or two-atom thick.
- The MOFs and 2D materials possess several unique features that should project them as better alternatives as sensors, than other nanomaterials.
- Both MOFs and 2D class of materials are known for their **large surface area, functionality**, and optoelectronic properties.
- They also have a wide range of synthesis methods and can be developed into disposable electrodes, optical kits, fiber optic sensors, colorimetric strips, etc.
- **Applications**
 - To develop electrochemical and optical sensors for different analytes, such as **bacteria, Aflatoxins, and heavy metals**.
 - It can be used for rapid and convenient detection of several health, food quality, and environmental parameters.
 - These are also useful for analyzing food toxins such as **Aflatoxins and Zearaloene** in water, milk and staple food samples.

Q1: What is Nanotechnology?

It is the study and manipulation of matter at dimensions ranging from 1 to 100 nanometers, where unique phenomena allow for novel applications. Nanomaterials enable lighter, stronger, and more functional materials while nanoelectronics power faster, smaller computing.

Source: [Novel nano polymers pave way for low-cost, efficient sensors](#)

Source: <https://vajiramandravi.com/current-affairs/metal-organic-frameworks/>

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