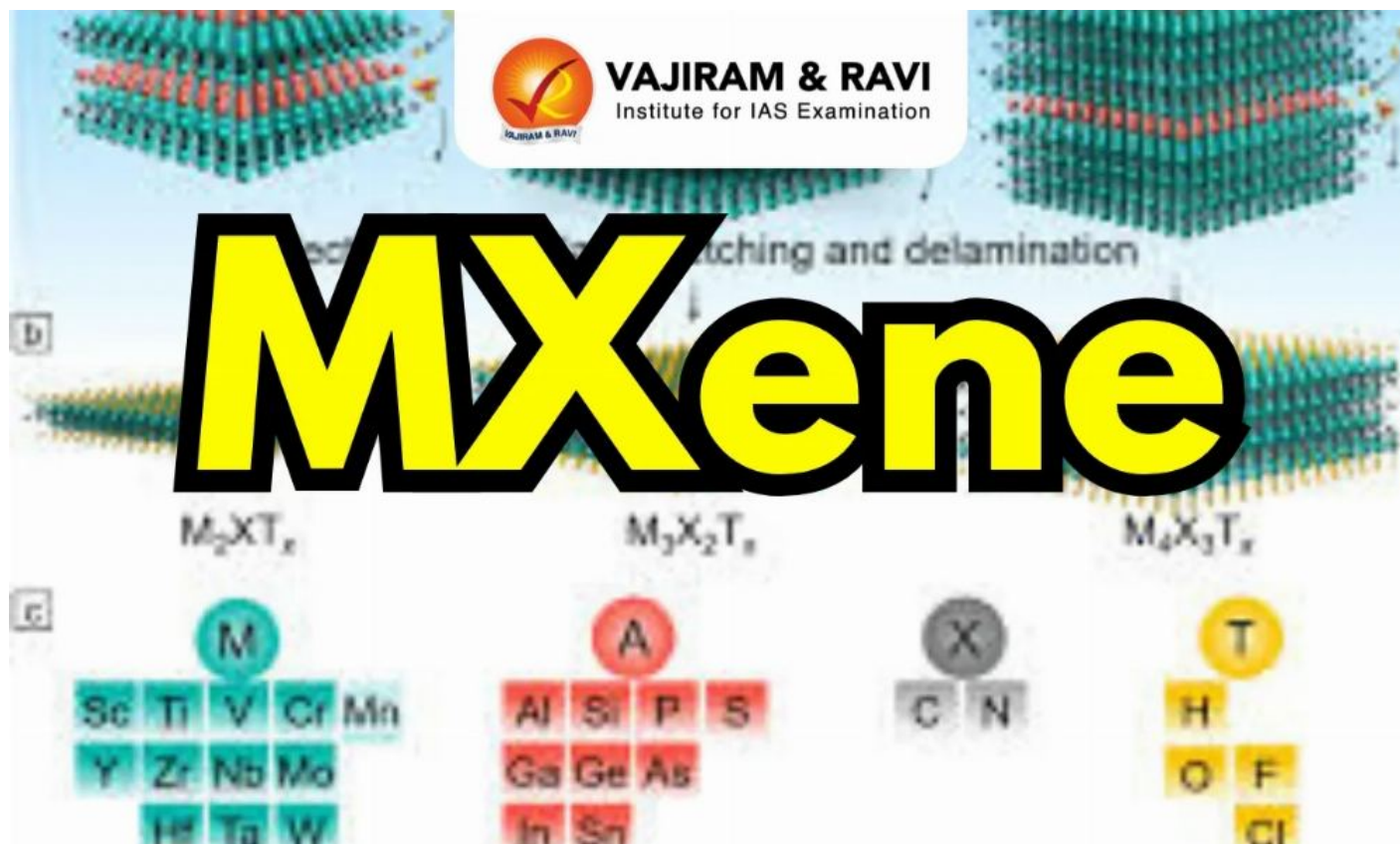


MXene

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MXene Latest News

Recently, the IIT Guwahati research team developed a MXene-based catalyst that can both produce hydrogen efficiently from water and act as a photocatalyst for desalination.

About MXene

- MXenes are a **group of two-dimensional materials** first discovered in 2011.
- They are made from a **bulk crystal called MAX**.
 - They have the general formula of $M_n+1X_nT_x$, where **M is an early transition metal**, X is **carbon and/or nitrogen**, and T is a **functional group** on the surface of an MXene (typically O, OH, and F).
- Among various types of MXenes, **titanium carbide** ($Ti_3C_2T_x$) is the most widely used.
- **Properties of MXenes:** They show **high electrical conductivity**, **excellent mechanical strength**, good **chemical stability**, **remarkable hydrophilicity**, and tunable surface chemistry.

Applications of MXenes

- **Energy Storage Devices:** MXene could be used in **energy storage devices** such as electrodes of Li-ion batteries, pseudo capacitors, etc.
- **Desalination and waste-water treatment:** These can be used in in water desalination and wastewater treatment.
- **Separation and Filtration Applications:** Because of remarkable properties such as hydrophilicity, conductivity, and high flexibility these can be used in separation and filtration **processes in industries.**

Source: DD News

Source: <https://vajiramandravi.com/current-affairs/mxenes/>

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