

CURRENT AFFAIRS: 23.06.2026

Ammonia Gas Leak in Tiruvallur Seafood Factory

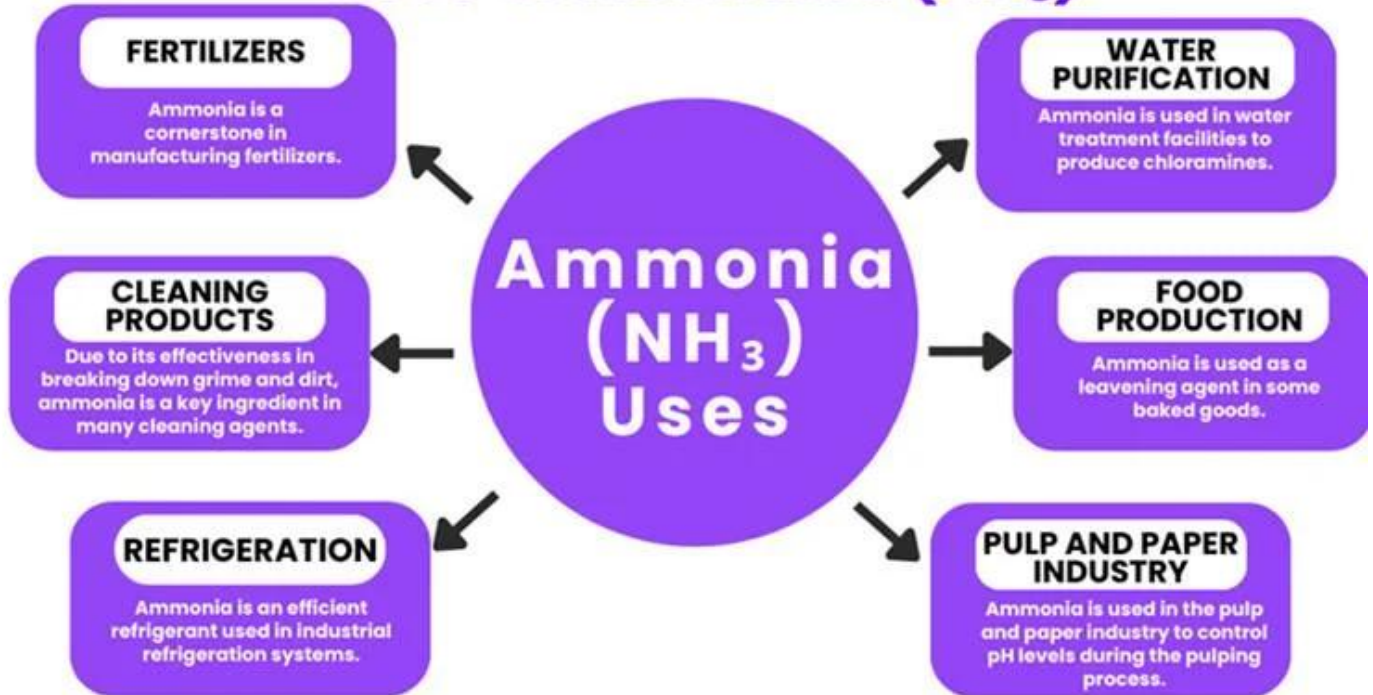
Tamil Nadu ammonia gas leak updates: Two women killed in gas leak in Tiruvallur seafood factory

Tiruvallur District Collector S. Kavitha visited the factory site and met with patients at the hospitals to oversee relief measures.

Recently, an ammonia gas leak at a **private seafood export unit in Tamil Nadu's Thiruvallur district** caused multiple deaths and hospitalised several workers.

- **About:** Ammonia is a **colourless, poisonous gas with a strong, pungent smell**. It occurs naturally through the decay of plant and animal matter and is also produced industrially through the **Haber-Bosch process** using nitrogen and hydrogen.
- **Impact:** Exposure to high levels of ammonia can **irritate the skin, eyes, throat and lungs**. It may cause coughing, burning sensation, nausea, vomiting, breathing difficulty, skin blisters and throat swelling.
- **Health Risk:** In serious cases, ammonia exposure can lead to **pulmonary edema, severe oxygen deprivation, lung damage, respiratory failure and even death**. Long-term exposure may increase the risk of chronic cough, asthma and lung scarring.
- **Treatment:** There is **no specific antidote for ammonia exposure**. Treatment mainly involves removing ammonia from the body and providing supportive care, such as oxygen support, respiratory management and treatment of skin or eye injuries.
- **Key Safeguards against Chemical and Industrial Disasters:**
 - Chemical Accidents Rules, 1996
 - Manufacture, Storage, and Import of Hazardous Chemicals (MSIHC) Rules, 1989
 - Chemical Accidents (Emergency, Planning, Preparedness and Response) Rules, 1996
 - Disaster Management (Amendment) Act, 2025.
 - Occupational Safety, Health and Working Conditions Code, 2020
 - The Environment Protection Act (EPA), 1986

Uses Of Ammonia (NH₃)



Three Indigenous Naval Ships Commissioned

Recently, the Prime Minister commissioned three indigenously built naval ships, **INS Dunagiri**, **INS Sanshodhak** and **INS Agray**, in Kolkata.

- **About:** The three vessels were built by Garden Reach Shipbuilders & Engineers (GRSE), Kolkata, with more than 75% indigenous content. They add distinct operational strengths to the Navy, ranging from **frontline combat** to **seabed mapping** and **coastal submarine detection**.
- **INS Dunagiri:** INS Dunagiri is a **Project 17A stealth guided-missile frigate** designed for **blue-water operations**, meaning it can operate far from the coast. It is the **largest and most heavily armed** among the three vessels.
 - It is equipped with advanced weapons and sensors, including **BrahMos surface-to-surface missiles**, Medium Range Surface-to-Air Missile system, MFSTAR radar, sonar, electronic warfare systems and **anti-submarine weapons**.
 - It strengthens the Navy's ability to counter **conventional and non-conventional threats at sea**.
- **INS Sanshodhak:** It is a **Survey Vessel Large (SVL)** meant for coastal and deep-water hydrographic surveys. It helps map seabed features, water depths, navigational routes, approach channels to ports and oceanographic data.
 - The ship is equipped with systems such as **autonomous underwater vehicles, remotely operated vehicles and multi-beam echo sounders**.

- Its data supports naval operations, submarine route planning, port development, safe shipping, disaster relief and ocean research.
- **INS Agray:** It is an **Arnala-class Anti-Submarine Warfare Shallow Water Craft** designed to detect and engage submarines in littoral or coastal waters.
 - It is equipped with lightweight torpedoes, indigenous anti-submarine rocket launchers and shallow-water sonar systems.
- **Strategic Significance:** Their commissioning reflects the Navy's effort to build capability across the full maritime spectrum, from **blue-water operations** in distant seas to **improved maritime domain awareness** and **stronger littoral defence**.
 - This is important **amid growing strategic competition in the Indian Ocean**, including the expanding naval presence of China and Pakistan.

Indian Navy: Three New Ships at a Glance



INS Dunagiri

Length: 149 m
 Scale: ≈ 1.5 football fields
 Displacement 6,670 tonnes
 Top speed: 28 knots / 52 kmph



INS Sanshodhak

Length: 110 m
 Scale: ≈ 1 football field
 Displacement 3,300 tonnes
 Top speed: 18 knots / 33 kmph



INS Agray

Length: 77 m
 Scale: -
 Displacement 900 tonnes
 Top speed: 25 knots / 46 kmph

ANCHOR

Why in News?

Recently, world's most detailed 3D atlas of human brainstem at cell resolution was released.

- **ANCHOR** – Atlas of Neurochemical Characterization of the Human Brainstem with 3D Reconstruction.
- **Released by** – The Indian Institute of Technology Madras (IIT Madras).
- **Features** – The world's most detailed three-dimensional atlas of the human brainstem at cellular resolution.

- It is a comprehensive, multimodal digital atlas that maps the human brainstem from the prenatal stage to adulthood.
- **Technologies used** – It integrates advanced imaging technologies such as Magnetic Resonance Imaging (MRI), histology, and detailed chemo-architectural analysis to provide an unprecedented view of brain structures and cellular organization.
- The atlas includes more than 200 brainstem nuclei and fiber tracts reconstructed from hundreds of serial brain sections.
- To identify distinct neurochemical cell types, researchers overlaid eight complementary immunostains across more than 500 sections, creating highly detailed maps of the brainstem.