PM reviews Vishakhapatnam Gas Leak Incident

Context

The incident of Styrene gas leakage occurred in a chemical plant in the early hours today at 3 am in RR Venkatapuram village, Gopalapatnam Mandal in Visakhapatnam District.

Early morning leakage from LG Polymers, which manufactures general purpose polystyrene, high impact polystyrene and coloured polystyrene caused panic in several areas of the city.

It was decided that a team from CBRN (Chemical, Biological, Radiological and Nuclear) unit of NDRF from Pune, along with an expert team of National Environmental Engineering Research Institute (NEERI), Nagpur would be rushed to Vishakhapatnam immediately to support the State Government in the management of the crisis on the ground, and also to take measures for resolving the short term as also long term medical impact of the leak.

Styrene gas

Styrene, also known as ethenylbenzene, vinylbenzene, and phenylethene, is an organic compound with the chemical formula \( \text{C}_6\text{H}_5\text{CH}=\text{CH}_2 \). This derivative of benzene is a colorless oily liquid although aged samples can appear yellowish. The compound evaporates easily and has a sweet smell, although high concentrations have a less pleasant odor. Styrene is the precursor to polystyrene and several copolymers.

Styrene, the chemical involved in the disaster-struck plant that produces polystyrene products, is included in the schedule of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989.

Styrene gas is a poisonous, inflammable gas used in plastic engineering industry, and could have triggered a series of explosions.

Styrene gas, which is toxic in nature, may cause irritation to the skin, eyes and causes respiratory problems and other medical conditions.

The Styrene gas can cause nausea and dizziness when inhaled, and experts say that person exposed to the gas should be given medical treatment immediately.

The Styrene gas affects the central nervous system, throat, skin, eyes and some other parts of the body.

Styrene is used to make insulation, pipes, automobile parts, printing cartridges and copy machine toner, food containers, packaging material, carpet backing, luggage, shoes, toys, floor waxes and polishes.

Impact and Symptoms

The exposure of styrene is through ingestion, inhalation or contact (skin). Common symptoms of styrene exposure include irritation to eyes, nose and skin; gastrointestinal and respiratory effects.
Its long term exposure may cause central nervous system and kidney related problems, depression, headache etc. The department of health and human services USA has listed styrene as reasonably anticipated to be human carcinogen.

Detection of Gas in Air

For ascertaining the level of styrene in a contaminated air, samples of air may be taken from different places of suspected exposure and be subjected to detailed analysis using a special styrene detection device. Gas chromatography may also be used for its qualitative and quantitative estimation.

Hazards related to Environment

When released into the soil or water, styrene is expected to readily biodegrade and evaporate quickly. While released into the air, styrene is expected to be readily degraded by reaction with photo-chemically produced hydroxyl radicals and is expected to have a half-life of less than 1 day.