

Red Fort Blast case: Why investigators are tracking ammonium nitrate link between Delhi blast and Faridabad haul

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Closed shops near Red Fort. (File)

Evidence gathered in the Red Fort blast case has been sent for forensic analysis to confirm whether ammonium nitrate was the primary explosive. The findings are crucial, as investigators are examining a possible link between the Delhi blast and the Faridabad terror module, where 358 kilograms of ammonium nitrate and other bomb-making materials were seized.

[The Indian Express](#) spoke to three experts — one forensic specialist and two explosives experts — about ammonium nitrate, its regulations, and the challenges in the forensic detection process.

How often is ammonium nitrate used in terror blasts in India, and how stringent are the regulations on accessing it?

Ammonium nitrate has been widely used in terror-related blasts in India, especially before 2012, when it was found in nearly every major attack, including the 1996 and 1997 serial blasts in [Delhi](#). Today, most terror groups rely on IEDs, for which ammonium nitrate remains a key component. Its access is highly regulated: a District Magistrate can permit possession of up to 30 metric tonnes, while larger quantities require PESO (Petroleum and Explosives Safety Organisation) approval. Buyers must state the purpose of use, and the government's System for Explosive Tracking and Tracing (SETT) monitors all licensed transactions. Despite this, large-scale illegal sales and purchases still persist.

The vehicle likely carried 60–70 kg of ammonium nitrate. If it had 350 kg, what would the impact be?

It could have damaged over a hundred nearby vehicles.

What clear signs do you look for to confirm that ammonium nitrate was used, even after the scene has been washed?

Such a blast releases gases like nitrous oxide, carbon dioxide, and nitrogen, which quickly disperse into the air. However, particles of ammonium nitrate can be scattered around, much like the incomplete combustion residue left behind after a firecracker explodes. In the Red Fort blast, similar residues would likely have settled on windowpanes, car parts, or road surfaces.

Washing may remove some of these traces, but not entirely. Residues often cling to dust particles or clothing. Today, highly sensitive chromatographic tests can detect even minute traces on almost any object.

How do you tell if ordinary fertilizer was turned into an explosive?

Ammonium nitrate—sometimes treated with phosphate or sulfur—is widely used as a fertilizer and is generally safe. However, if stored at high temperature or subjected to a strong shock, it can undergo violent decomposition and may detonate even without added fuel.

Historical incidents show the chemical itself can be the cause of an explosion.

If fuel oil is added to create ANFO, a detonator is still required to initiate the blast. A detonator contains a small amount of a primary explosive; when ignited by flame or an electric current, it detonates and triggers the ammonium nitrate–fuel mixture, causing a chain reaction and a large explosion.

A typical ANFO charge is roughly 94% ammonium nitrate and 6% fuel oil; industrial-grade ammonium nitrate can be used to make such a mixture. On its own it usually will not detonate unless exposed to very high heat or a detonator.

What kinds of residue or marks on a car, soil, or clothes point to an ANFO-style blast?

If the explosive was ammonium nitrate, nitrogen oxides can form and be further oxidized to nitrogen dioxide (NO_2). NO_2 dissolves in water to form nitric acid (HNO_3), which contains nitrate ions (NO_3^-). Detecting elevated nitrate levels in the surrounding environment can therefore indicate the prior presence of ammonium nitrate.

How can you check whether ammonium nitrate found in a suspect's house is the same material that caused the blast?

This is usually established only on the basis of circumstantial evidence. In areas such as Faridabad, mining in the Aravalli Hills is common; miners routinely use explosives, including ammonium nitrate and other industrial charges, along with detonators, so these materials are easy to obtain.

What chemical breakdown products or gases (e.g., NO_x) do ammonium-nitrate blasts leave behind that you can detect?

A large open-air explosion mainly produces oxygen, nitrogen, and water vapor, which are indistinguishable from ambient air. However, confined or partially confined blasts (for example, inside a vehicle) can produce brownish nitrogen oxides such as nitric oxide (NO)

and nitrogen dioxide (NO₂), which may be detectable immediately after the event. Over time, NO₂ can form nitrates that persist in the environment.

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