

Common Explosives—Identification and Characteristics

Primary Explosive Boosters



Triacetone-Triperoxide (TATP) is an improvised primary explosive that is relatively easy to synthesize. It can be very unstable and sensitive to heat, shock, and friction. TATP is made of a mixture of hydrogen peroxide and acetone with the addition of an acid, such as sulfuric, nitric, or hydrochloric acid.



Hexamethlene Triperoxide Diamine (HMTD) is an improvised primary explosive prepared from three basic precursors: hexamine, a weak acid, and hydrogen peroxide. The product is highly sensitive to friction, impact, and electrostatic discharge. HMTD is corrosive in contact in metals and can degrade quickly if improperly synthesized or stored.

Secondary Explosive/Main Charge



Ammonium Nitrate Fuel Oil (ANFO) is an explosive mixture of a ammonium nitrate and an organic fuel. Because of its ready availability and cheap material cost ANFO has been used extensively as the main charge in improvised weapons around the world and is the most common commercial explosive. ANFO is a secondary/tertiary explosive, and requires little specialized skills or machinery to mix. The optimum blend for ANFO (if properly prepared) could yield greater explosive power than TNT.



Urea Nitrate is a high explosive produced by combining dissolved urea fertilizer with nitric acid. Urea nitrate is formed as odorless crystals that are colorless to off-white, although additives and or metal from the mixing container may alter the compound's appearance. Urea nitrate is used as a secondary explosive/main charge.

Military/Commercial Explosives



Trinitrotoluene (TNT) is one of the most commonly used explosives for military and industrial purposes. Its insensitivity to shock and friction reduces the risk of accidental detonation. It appears as a yellow solid and is commonly mixed with other explosives materials in commercial boosters and military munitions or used as a main charge.



C-4 is a common insensitive military explosive combining cyclonite or cyclotrimethylene trinitramine (RDX) as the explosive agent—usually about 91percent of the C-4 content—along with plastic binder, plasticizer, and possibly marker chemicals which can help identify the manufacturing source. C-4 appears as an off-white solid with a consistency similar to modeling clay.