

easily penetrated thick jungle canopies. Its high explosive and phosphorous shells were most effective against machinegun nest and log bunkers. Experimental 4.2-inch mortars also allowed horizontal fire directly into enemy-held tunnels and caves. By the end of the war chemical mortar battalions had fired over 2.75 million rounds of high explosive and white phosphorous shells into enemy positions. Together they had suffered over 2,400 casualties, and received thousands of decorations for their bravery and sacrifice.



With the demobilization of the army following World War II only one chemical mortar unit, the 2<sup>nd</sup> Chemical Mortar Battalion, was ready for duty when American forces were committed to fight in the Korean War. The high angle firepower of their 4.2-inch mortars were perfect for the mountainous terrain of Korea, and the firepower of their weapons were essential to break up Chinese and North Korean “human wave” assaults. Under a change in mission the 2<sup>nd</sup> Chemical Mortar Battalion

was reorganized as the 461<sup>st</sup> Infantry Battalion (Heavy Mortar), ending the Chemical Corps involvement with this remarkable weapon.

*For More Information Contact:*

U.S. Army Chemical Corps Museum  
 495 South Dakota Avenue  
 Bldg 1607  
 Fort Leonard Wood, Missouri 65473  
 phone: (573) 596-4221  
 fax: (573) 596-1508



## *Chemical Mortars*



First developed in WWI, chemical mortars were designed to fire poison gas and smoke shells into enemy positions. The 1<sup>st</sup> Gas Regiment, American Expeditionary Force, used the British 4-inch Stokes Mortar effectively in the fighting in France. Improved by the Chemical Warfare Service in the 1920s and 1930s the chemical mortar became lighter, easier to move and emplace, and more accurate. The latest version, the rifled 4.2-inch M2 Chemical Mortar, became a preeminent weapon in World War II.

The operation of the mortar is simple. Target information was given to the mortar crew. Range was adjustable by barrel elevation and varying the amount of propellant used. Sliding down the barrel the shell strikes a firing pin at the bottom, detonating a primer cartridge, and igniting the propellant attached to the base of the shell. The gases generated by the explosion expand a soft metal driving band on the base of the

shell, which in turn grips the spiral rifling of the barrel, giving the shell stability in flight and increasing accuracy.

As an example of this increased accuracy, a chemical mortar crew in Sicily fired eight rounds at an enemy tank. All eight fell within a 15 foot radius, with one round dropping into the open turret hatch, destroying the vehicle and halting the enemy assault.

The 4.2-inch mortar could be fired faster, and its shells had a bigger bursting radius, than a 105mm howitzer. A massed chemical mortar battalion could fire twelve tons of shell on a target in one minute, relocate to a new positions in six minutes, and repeated the operation with equal precision a minute later. In combat, a well trained crew could fire ten rounds before the first one exploded on target. Additionally, no other weapon could deliver gas like the 4.2 inch mortar: eight tubes could fire a ton of chemicals in two minutes. Although chemical munitions were stockpiled in theater they were not utilized by the Allied forces in World War II. Instead the 4.2-inch mortar fired high explosive, white phosphorous, and smoke shells. Serving on the front lines with combat troops the fire support provided by chemical mortars was in continual demand. As a result chemical mortar battalions had to remain at the front when other units were allowed to leave the front lines and cycle back to rest areas.

Chemical Mortar Battalions took an active part in the fighting throughout North Africa, Europe, and the Pacific, where the 4.2-inch mortar, or "Four Deuce" as it was



commonly called, quickly gained a reputation among combat troops for its swift fire missions, accuracy of fire, and the devastating impact of its shells. The weapon also earned great respect from enemy personnel, who at first thought the rapid bombardments resulted from the "automatic artillery" of the American Army.

Weighing over 350 pounds, and with each shell weighing 22 pounds, the 4.2-inch M2 Chemical Mortar was the heaviest field mortar in U.S. service. Originally designed to be hauled into action on handcarts, the 4.2-inch mortar achieved greater mobility when loaded into jeeps and 2 ½ ton trucks, allowing faster displacement after fire missions.

Chemical mortar battalions participated in both amphibious and airborne landings. Landing with the first few waves they provided direct fire support during the D-Day invasion of Normandy, and "Four Deuce" mortars, with their vehicles and crews, were landed by gliders in the south of France in 1944.

So great was the need for support during amphibious landing that landing crafts were modified to allow 4.2-inch mortars to fire from the vehicles from offshore. The poor accuracy of fire resulting from rough seas limited this use of the weapon.

In the Pacific Theater the 4.2-inch mortar proved valuable in jungle fighting. The mortars could be more easily moved and emplaced in the heavy vegetation than field artillery, and its heavy shells

