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Chemical Warfare

Chemical warfare is a broad topic that covers many different types of chemicals, varying in severity. Chemicals have been used for centuries in the form of poisons in food and on weapons. Now, a modern era of chemical warfare has begun. Now gases such as chlorine gas, VX, and sarin have been introduced.

During World War I chlorine and phosgene gases were introduced. These gases were left in cylinders on the battlefield to be disseminated by the breeze. The first significant example of chlorine gas being used was by Fritz Haber, the head of the German chemistry branch of the Ministry of War, on April 22, 1915 in Belgium. Because this was the first time, Allied troops panicked and sook shelter in the trenches. This was counterproductive because chlorine gas is denser than air and therefore sunk down into the trenches Chlorine gas in low levels is an irritant for the eyes and skin and can cause permanent lung damage. However, in high levels, chlorine gas can cause excess fluid in the lungs, or pulmonary edema. In worst cases, chlorine gas can be lethal. During the first attack 5,00 soldiers died and 10,000 more suffered casualties. The Allies learned how to minimize damages by utilizing gas masks. Further chemical warfare was avoided during World War II when both sides knew the other was capable of utilizing the gas so they both refrained. However, today chemical gas has reappeared in the Iraq war and now by Syria while bombing a suburb of Aleppo.

VX gas is a man-made chemical known as a nerve agent because it impacts the messaging of nerve impulses in the body. It was developed in the 1950’s in the UK. This is the deadliest and most rapid acting of all chemicals used today in modern warfare. Analogous to pesticides, nerve agents act within seconds, disrupting the enzyme (acetylcholinesterase) that inhibits the “turning off” of glands and muscles, leading to constant stimulation and exhaustion of muscles, which eventually results in asphyxiation or heart failure. Similar to chlorine gas, VX is heavier than air which causes attacks to be even more deadly, because the chemicals all cluster near the ground. Additionally, VX is not very volatile, meaning that VX is a persistent threat. VX can last for days if the weather is moderate and months if it is extremely cold. VX was used in the Iran-Iraq war during the 1980s.

Sarin, or GB, was utilized by the Syrian government during the 2013 attack on its capital’s suburbs. This is the most significant recent example of chemical warfare worldwide, the previous being Saddam Hussein’s use in Halabja during the late 1980s. Created in Germany in 1938, sarin was accidentally discovered while researching pesticides. It is somewhat difficult to weaponized due to the face that sarin must be in gas form to be easily inhaled and the particles must strike the perfect balance between being small enough to diffuse through the lungs but large enough that they are too heavy to breathe back out. Sarin also easily deteriorates, which means that Syria’s stockpile weapons were not as potent as they could have been. However, the sarin was much more potent than the liquid sarin used by a Japanese cult in a 1995 attack of the Tokyo subway. That attack created mass hysteria but only killed 13 people. It was also higher quality those used by Hussein in the 1980s, but much weaker than the sarin produced by the US or Soviet Union. In its most dangerous form, sarin can be so potent that a pin drop of liquid can rapidly kill an adult. When it has deteriorated significantly symptoms include increased production of saliva and tears, headaches, and paralysis of the muscles.

It is very important that as a race, humans decide not to utilize these horrendous instruments of mass destruction. These weapons can destroy humankind. The use of such atrocities has broadly been kept in check by the UN, however substances such as chemical gas have not been banned. In addition, some countries, such as the United States, argue that getting rid of chemical stockpile is not only a threat to the environment and costly, but also puts the nation at a disadvantage when compared to countries that do have a stockpile. Please write to your representative in Congress to push bills that work to eliminate the presence of chemical weapons not only in the US, but also worldwide.

Works Cited

Cotton, Simon. "What Is Chlorine Gas and How Did It Become a Weapon?" *Newsweek*. Newsweek LLC, 13 Sept. 2016. Web. 1 Oct. 2016.

Esfandiary, Dina, Amitai Etzioni, Aftan Snyder, and Sean M. Bigley. "The Five Most Deadly Chemical Weapons of War." The National Interest. Center for the National Interest, 17 July 2014. Web. 1 Oct. 2016.

"Facts About VX." *Centers for Disease Control and Prevention*. USA.gov, 9 May 2013. Web. 1 Oct. 2016.

"History of CW Use." *History of CW Use*. Organization for the Prohibition of Chemical Weapons, n.d. Web. 1 Oct. 2016.