

# TerranearPMC Safety Share

## Week of August 31, 2015 – Methamphetamine

I once attended a class at an industrial hygiene conference where we learned how to derive methamphetamine from the OTC cold remedy medication, Sudafed®. For years this was the starting ingredient used in clandestine labs. Iodine was used as a reducing agent (this is the opposite of an oxidizer, therefore removing oxygen – in this case a hydroxyl group which is part of the molecular structure of Sudafed® – once this was removed and replaced by a simple hydrogen atom.....the transformation was complete). Organic solvents are necessary in the synthesis. As it turns out, lighter fluid – and lots of it – is the typical choice. Thus, gallons of “Kingsford” in the back yard are a strong indication that a home was being used as a makeshift lab.

Unfortunately, the people that are making methamphetamine (aka “meth”) in these crude environments were not chemists – far from it! They learn through on-the-job training (for lack of a more appropriate phrase) from other non-chemists, using a non-scientific cookbook approach. They are just told what ingredients they need and when to add materials; no knowledge as to why they were doing it. As a result, many disastrous consequences occur. Sometimes, due to the emissions of flammable off-gassing byproducts (such as phosphine) a home would blow up or someone would light a cigarette, causing an instant ball of fire; usually resulting in some serious burns. In one case, after someone caught on fire, another person, not knowing that a specific substance they were handling was very flammable; actually thinking it was water, doused the victim in their attempt to put the fire out. When the police and fire department arrived on the scene, they witnessed a completely charred body.

Sometimes the victims were not the people making meth, but the law enforcement personnel that responded to these illegal operations. On many occasion, police would enter a suspected clandestine facility and receive a severe chemical exposure; a not too uncommon event that would render a police officer with permanent disabilities. This is the main reason why industrial hygienists have been involved with meth labs, as law enforcement personnel need subject matter expertise for proper protective measures prior to entering these makeshift labs.

Methamphetamine is not a new drug, although it has become more powerful in recent years as techniques for its manufacture have evolved. Its precursor, amphetamine, was first made in 1887 in Germany and methamphetamine, more potent and easy to make, was developed in Japan in 1919. The crystalline powder was soluble in water, making it a perfect candidate for injection.

However, it was in Germany that the drug developed notoriety. When the then-Berlin-based drug maker Temmler Werke launched its methamphetamine compound onto the market in 1938, high-ranking army physiologist Otto Ranke saw in it a true miracle drug that could keep tired pilots alert and an entire army euphoric. It was the ideal war drug. In September 1939, Ranke tested the drug on university students, who were suddenly capable of impressive productivity despite being short on sleep.

From that point on, the Wehrmacht, Germany's World War II army, distributed millions of the tablets to soldiers on the front, who soon dubbed the stimulant "Panzerschokolade" ("tank chocolate"). The world was shocked at the speed in which the German Army advanced through Europe, with their ground troops needing no sleep while maintaining their aggressive offense. This historic military



## TerranearPMC Safety Share

advance; using ground troops and air support was dubbed “blitzkrieg.” Today, the term has been shortened and is known as the popular defensive football strategy as a “blitz.”

British newspapers reported that German soldiers were using a "miracle pill." But for many soldiers, the miracle became a nightmare. As enticing as the drug was, its long-term effects on the human body were just as devastating. Short rest periods weren't enough to make up for long stretches of wakefulness, and the soldiers quickly became addicted to the stimulant. And with addiction came sweating, dizziness, depression and hallucinations. There were soldiers who died of heart failure and others who shot themselves during psychotic phases. Some doctors took a skeptical view of the drug in light of these side effects. Even Leonardo Conti, the Third Reich's top health official, wanted to limit use of the drug, but was ultimately unsuccessful.

Germany wasn't the only ones using methamphetamine on the battlefield. Over 72 million “energy tablets” were dispersed to the British military. Amphetamines assisted in stopping Erwin “Desert Fox” Rommel and the German army in Northern Africa at the Second Battle of El Alamein where the British 24th Armored Brigade fought without sleep for four straight days while suffering heavy casualties.

High doses were given to Japanese Kamikaze pilots before their suicide missions. And after the war, methamphetamine abuse by injection reached epidemic proportions when supplies stored for military use became available to the Japanese public.

In the 1950s, methamphetamine was prescribed as a diet aid and to fight depression. Easily available, it was used as a nonmedical stimulant by college students, truck drivers and athletes. Soon afterwards, the popularity of the drug spread.

We all are aware of how meth has become a crisis in America. Lives are destroyed; not only is the user affected, but family and friends as well as communities suffer. As far as treatments for meth addicts go, according to experts, behavioral therapies, such as cognitive-behavioral and contingency-management interventions have proven to be the most effective. Such treatments typically involve a multi-pronged approach incorporating comprehensive behavioral treatment that combines behavioral therapy, family education, individual counseling, 12-Step support, drug testing, and encouragement for non-drug-related activities. And while medications have proven effective in treating *some* substance use disorders, there are currently no medications that counteract the specific effects of methamphetamine.

Of course, the most effective way to combat meth addiction is to not start. Unfortunately this message seems to have had little effect as its use seems to continuously grow. Meth addicts agree that their initial introduction to this drug is a desire for fun and indeed, people freely admit that at first they were having an incredibly euphoric time. However, soon afterwards, reality hits very hard. Addicts recall of sinking so low as to neglect family and children while placing themselves in some of the lowest levels of self-esteem. With lots of support some were able to put their lives back together. All ex-addicts admit that it was very difficult but well worth it. Now the question is, “where do we go from here?”

**A government which robs Peter to pay Paul can always count on the support of Paul.** George Bernard Shaw