

of the end caps with a good pipe dope and screw them onto the pipe. This gives you a thermite charge in an iron pipe arranged so that when the thermite is electrically ignited, it will burn from one end to the other finally setting off the flash powder charge. Place this device in a larger pipe or very stout metal container which is sealed at one end. Use a couple of metal "spiders" to keep the device away from the walls or ends of the larger container. Run the wires out through the wall of the container and seal the wires with the fuel proof epoxy. Fill the container with a volatile liquid fuel. Acetone or gasoline works great. Now seal up the container with an appropriate end cap and it is done.

The device works like this: Attach a timer-power supply to the wires. When the thermite is ignited it superheats the liquid fuel. Since the container is strong enough to hold the pressure the fuel does not boil. When the thermite burns down to the explosive, it explodes rupturing the container and releasing the superheated fuel. The fuel expands, cooling off and making a fine mist and vapor that mixes with the surrounding air. The hot thermite slag is also thrown into the air which ignites the fuel-air mix. The result is obvious. Try about 1 « lbs of thermite to a gallon of fuel. For the pressure vessel, try an old pressure cooker. Because the fuel may dissolve the epoxy don't keep this device around for very long. But ask yourself, do you really want to make this?

EXOTIC THERMITES: Thermites can also be made from teflon-magnesium or metal fluorides-magnesium or aluminum. If there is an excess of fluoride compound in the mixture, fluorine gas can be released. Fluorine is extremely corrosive and reactive. The gas can cause organic material to burst into flames by mere contact. For teflon-magnesium use 67% teflon and 33% magnesium. A strong first fire igniter should be used to ignite this mixture. Both the teflon and the magnesium should be in powdered form. Do not inhale any smoke from the burning mixture. If you use metal-fluorides instead of teflon, use fluorides of low energy metals. Lead fluoride is a good example. Try using 90% lead fluoride and 10% aluminum. Warning: Fluoride compounds can be very poisonous. They are approximately equal to cyanide compounds. Another exotic mix is tricalcium orthophosphate and aluminum. When this burns, it forms calcium phosphide which when contacts water releases hydrogen phosphide which can ignite spontaneously in air. Tricalcium orthophosphate has the formula  $\text{Ca}_3(\text{PO}_4)_2$  and is known as white-lockite. Use about 75% orthophosphate and 25% aluminum. This ratio may have to be altered for better burning as I have not experimented with it much and don't know if more aluminum may reduce the calcium better. It does work but it is a hard to ignite mixture. A first fire mix containing a few percent of magnesium works well.

Fighting thermite fires: Two ways to fight thermite fires are either smothering the thermite with sand. This doesn't put out the thermite but it does help contain it and block some of the heat. The other way is to flood the thermite with a great amount of water. This helps to break the thermite apart and stop the reaction. If you use a small amount of water, an explosion may result as the thermite may reduce the water and release hydrogen gas. Thermite can start fires from the heat radiating from the reaction. Nearby flammable substances can catch fire even though no sparks or flame touch them.