NOTE: Thermites are generally very safe to mix and store. They are not shock or friction sensitive and ignite at about 2000øF.

A first fire mix is a mixture that ignites easier than thermite and burns hot enough to light the thermite reliably. A very good one is :

- Potassium Nitrate 5 parts
- Fine ground Aluminum 3 parts
- Sulfur 2 parts

Mix the above thoroughly and combine 2 parts of it with 1 part of finely powdered ferro-thermite. The resulting mixture can be light by safety fuse and burns intensely.

One problem with thermites is the difference in weight between the aluminum and the oxide. This causes them to separate out rendering the thermite useless. One way to fix this is to use a binder to hold the chemicals to each other. Sulfur is good for this. Called Diasite, this formula uses sulfur to bind all the chemicals together. It's drawback is the thermite must be heated to melt the sulfur.

- Iron Oxide 70 %
- Aluminum 23 %
- Sulfur 7 %

Mix the oxide and aluminum together and put them in an oven at 325øF and let the mix heat for a while. When the mixture is hot sprinkle the sulfur over it and mix well. Put this back in the oven for a few minutes to melt all the sulfur. Pull it back out and mix it again. While it is still hot, load into containers for use. When it cools, drill out the diasite to hold about 10 - 15 grams of first fire mix. When diasite burns it forms sulfide compounds that release hydrogen sulfide when in contact with water. This rotten egg odor can hamper fire fighting efforts. Thermite can be made not to separate by compressing it under a couple of tons pressure. The resulting pellet is strong and burns slower than thermite powder.

CAST THERMITE: This formula can be cast into molds or containers and hardens into a solid mass. It does not produce as much iron as regular ferro-thermite, but it makes a slag which stays liquid a lot longer. Make a mixtures as follows.

- Plaster of Paris 2 parts
- Fine and Coarse Mixed Aluminum 2 parts
- Iron Oxide 3 parts

Mix together well and add enough water to wet down plaster. Pour it into a mold and let it sit for « hour. Pour off any extra water that separates out on top. Let this dry in the sun for at least a week. Or dry in the sun for one day and put in a 250øF oven for a couple of hours. Drill it out for a first fire mix when dry.

THERMITE BOMB: Thermite can be made to explode by taking the cast thermite formula and substituting fine powdered aluminum for the coarse/fine mix. Take 15 grams of first fire mix and put in the center of a piece of aluminum foil. Insert a waterproof fuse into the mix and gather up the foil around the fuse. Waterproof the foil/fuse with a thin coat of wax. Obtain a two-piece spherical mold with a diameter of about 4-5 inches. Wax or oil the inside of the mold to help release the thermite. Now, fill one half of the mold with the cast thermite. Put the first fire/fuse package into the center of the filled mold. Fill the other half of the mold with the thermite and assemble mold. The mold will have to have a hole in it for the fuse to stick out. In about an hour, carefully separate the mold. You should have a ball of thermite with the first fire mix in the center of it, and the fuse sticking out of the ball. Dry the ball in the sun for about a week. DO NOT DRY IT IN AN OVEN! The fuse ignites the first fire mix which in turn ignites the thermite. Since the thermite is ignited from the center out, the heat builds up in the thermite and it burns faster than normal. The result is a small explosion. The thermite ball burns in a split second and throws molten iron and slag around. Use this carefully !

THERMITE WELL: To cut metal with thermite, take a refractory crucible and drill a 1/4 in. hole in the bottom. Epoxy a thin (20 gal) sheet of mild steel over the hole. Allow the epoxy to dry. Fill the crucible with ferro-thermite and insert a first fire igniter in the thermite. Fashion a standoff to the crucible. This should hold the crucible about 1 « in. up. Place the well over your target and ignite the first fire. The well works this way. The thermite burns, making slag and iron. Since the iron is heavier it goes to the bottom of the well. The molten iron burns through the metal sheet. This produces a small delay which gives the iron and slag more time to separate fully. The molten iron drips out through the hole in the bottom of the crucible. The standoff allows the thermite to continue flowing out of the crucible. The force of the dripping iron bores a hole in the target. A 2 lb thermite well can penetrate up to 3/4 in. of steel. Experiment with different configurations to get maximum penetration. For a crucible, try a flower pot coated with a magnesium oxide layer. Sometimes the pot cracks however. Take the cast thermite formula and add 50% ferro-thermite to it. This produces a fair amount of iron plus a very liquid slag.

THERMITE FUEL-AIR EXPLOSION: This is a very dangerous device. Ask yourself if you really truly want to make it before you do any work on it. It is next to impossible to give any dimensions of containers or weights of charges because of the availability of parts changes from one person to the next. However here is a general description of this device affectionately known as a HELLHOUND.

Make a thermite charge in a 1/8 in. wall pipe. This charge must be electrically ignited. At the opposite end of the pipe away from the ignitor side put a small explosive charge of flash powder weighing about 1 oz Drill a small hole in a pipe end cap and run the wires from the ignitor through the hole. Seal the wires and hole up with fuel proof epoxy or cement. Try ferrule cement available at sporting goods stores. Dope the threads