



SULFIDE ORE FLUX

1. If assaying an ore sample, be sure that your ore is a representative sample of your ore vein. Take chips and rocks from the entire surface of the vein and drill the vein if possible.
2. Pulverize the ore into a powder (80 mesh or finer) and stir the powdered ore thoroughly.
3. Measure out 29.16 grams of ore (this is an Assay Ton) or material to be smelted. **
4. Mix 3 ounces of the Sulfide Ore Flux formula with the material and place into a crucible. (If smelting larger amounts of material, be sure to use a 3 to 1 ratio.) *Add 4 8-penny nails to the crucible. Bend the nails in a U-shape in order for them to sit completely into the flux inside the crucible.* The iron will unite with the sulfur and other impurities and reduce the litharge to lead.
5. Fire crucible at 2000°F for 1.5 hours (The crucible must remain in the furnace for 1.5 hours after the furnace reaches 2000°F). There must be some nail left at the end of the firing or add more during the firing to ensure complete reduction of sulfides.
6. Using tongs remove the crucible from the furnace and pour its entire contents into a pouring mold.
7. When the slag in the pouring mold has cooled, you can remove the remaining nail from the slag. **CAUTION: the remainder of the nails in the slag are very sharp! Handle carefully.** Always check to see that some portion of the nails are still present when you finish the pour. If all the nails are gone, you didn't use enough nails, so you must redo the assay using more nails. There will be a lead button at the bottom of the slag. Break this loose from the slag.
8. Pound the lead button with a hammer until the slag is broken off. Most assayers pound the lead button into a cube. A small amount of slag will adhere to the lead as powder. This will give no trouble.
9. Place the lead on a cupel and place the cupel into the furnace at 1700°F until the lead has all been absorbed into the cupel or volatilized into the air, leaving the precious metals as a small bead in the cupel.
10. Weigh the bead, or measure its size.

NOTE: If you used 29.16 grams of ore material, then for each milligram your bead weighs, there is 1 ounce of precious metals in your ore. But remember at this point the bead is gold, silver and maybe platinum so you must go on to standard separation methods before you will know the exact gold, silver and platinum content.

WARNING!!

MINING EQUIPMENT, CHEMICALS AND MINING LABORATORIES CAN BE DANGEROUS ENVIRONMENTS AND THERE IS ALWAYS A RISK IN SUCH AREAS. ALWAYS USE AND WEAR APPROPRIATE SAFETY GEAR AND FOLLOW SAFETY PROCEDURES TO PREVENT INJURY! PLEASE USE COMMON SENSE AND BE CAREFUL!!

“Recovery gets simpler, not more complex.....”

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