

# Laboratory Experiment Proposal Submission

## Experimental Details

**Experiment location:** A127  
**Experiment title:** Synthesis of doped iron telluride  
**Experiment date:** Aug 24th 2011  
**Experiment contactname:** P. Zajdel  
**Experiment contactphone:** 240 595 8254  
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## Chemicals Used

<u>Chemical Name</u>	<u>Health</u>	<u>Flammability</u>	<u>Reactivity</u>	<u>Special Hazards</u>
Iron Powder	0	1	1	NONE
Tellurium Powder	2	0	0	
Chromium Powder	2	0	0	NONE
Zinc Powder	3	0	0	NONE
Nickel Powder	2	0	1	NONE

## Reactants and Resulting Samples

<u>Chemical Name</u>	<u>Hazardous?</u>	<u>Known Hazards</u>
Zinc Iron Telluride	N	
Chromium,nickel Iron Telluride	N	

## Required Safety Equipment

- Glove Cold
- Glove Hot
- Lab Coat
- Goggles Welding
- Tongs

## Required Laboratory Equipment

- Balance
- Microscope
- Xray Diffractometer
- Chamber Furnace
- Glass Torch
- Vacuum Pump

## Experimental Write Up

1. Stoichiometric quantities of starting materials will be placed in agate mortar and grinded.
2. Material will be placed in quartz tube (outer diameter 10mm) and evacuated using turbo pump.
3. Tube will be sealed using glass torch.
4. Sealed tube will be placed in the chamber furnace, which will conduct the following program:
  - a) Ramp 50K/h to 450C, dwell 6h,
  - b) ramp 50K/h to between 775C and 1000C, dwell 48h,
  - c) cool 50K/h to room temperature.
5. Tubes will be opened under fume hood and checked for quality using XRD.
6. If unsuccessful - steps 2 - 5 will be repeated.

In case of emergency - turn off the furnace and unplug it.

Experimenter Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Lab Responsible Signature: \_\_\_\_\_

Date: \_\_\_\_\_