

# MELTING POINT APPARATUS FOR AFRICAN COUNTRIES

## (AfriMPA)

- **WHAT IT DOES:**

Basically a melting point apparatus is an electrical apparatus for measuring the melting point of substances. It has a variable heater, a digital temperature display screen, hold display switch, and a rapid heat switch. The substance to be analysed is filled into a capillary tube, and placed into the apparatus. The variable heater is used to heat up the internal temperature, and the digital display screen shows the current temperature. However, in developing countries in Africa, when there is no source of electricity, the experiment is put on hold, or a less accurate method using paraffin wax, a beaker, a hand-held thermometer, wire gauze and Bunsen burner is used. Also, another substance cannot be analysed immediately. For example, one has to wait a while, for the internal temperature to cool in some cases to avoid errors.

- **HOW IT SOLVES THE IDENTIFIED PROBLEM:**

With AfriMPA, the above problem can be solved. AfriMPA is a melting point apparatus that has an alternate source of power in addition to the electrical supply. It can be powered by solar energy stored by mini solar panels instead of batteries that cause toxic harm to the environment. Also, it has a thermostat to quickly regulate the internal temperature, so that other substances can be analysed.

- **HOW IT PROVIDES SOCIAL AND ECOLOGICAL VALUE:**

Students and other scientists will be able to carry out accurate analysis of the melting point of substances. Most importantly, lack of electricity will not be a barrier during analysis.

- **HOW I ENVISION IT BEEN MADE IN THE FabLab:**

Knowing fully well that there is a 3D printer (BigRep One 3D), I will be able to make a prototype of this apparatus with its new features. Also, extra polishing of the surface can be gotten using the Proxxon PM 100 polishing machine, and with the array of high end machines available, each manufacturing step can be actualised.