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R-Candy Fuel Synthesis

AGENDA

01 Explanation

02 Process

03 Safety

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Explanation

I will be making a batch of R-Candy, a simple, easy-to-manufacture type of rocket fuel intended for small model rockets. This process is common among amateur rocketeers and is well-documented. This propellant is popular due to the commonality of the fuel and oxidizer components, which will be reviewed shortly

Crafting Process

Materials & Equipment

- → Potassium Nitrate (KNO3) - obtained online
- → Sucrose - simple white sugar
- → Mortar and pestle
- → Heat source - ordered electric heating unit
- → Rocket casing - made of cardboard

Preparation

- → Weigh out 60:40 ratio of KNO3 and sucrose
- → Grind materials to fine powder
- → Thoroughly mix

Heating

- → Slowly heat dry mixture on low heat outside
- → Frequently stir with wooden utensil
- → Once the sugar begins to caramelize, the mixture will begin homogenizing
- → Remove once mixture achieves caramel-like consistency

Casting

- → Pour into prepared cardboard tubes
- → Poke a hole through the center of the tube for faster burn
- → Allow mixture to cool entirely

Safety Procedures

Safety is an important part of any scientific experiment. Precautionary steps include:

- Use of goggles/breathing mask
- Thick, protective clothing
- Nearby fire extinguisher/water
- Outdoor setting
- Foreknowledge of process and proper planning
- Electric heating - no open flames

WARNING

MAKING ROCKET FUEL

CAN BE DANGEROUS

HANDLE WITH CARE

OBJECTIVES

01

Gain Practical AE Experience

While coursework is valuable, to be a good engineer one must also have practical experience in the domain in which they hope to work. Creating rocket propellant is an excellent introduction into the world of rocketry.

02

Begin a Series of Experiments

This experiment will be the first step in creating a model rocket from scratch, a project which will also involve design, 3D printing, simulation, and engineering iteration.

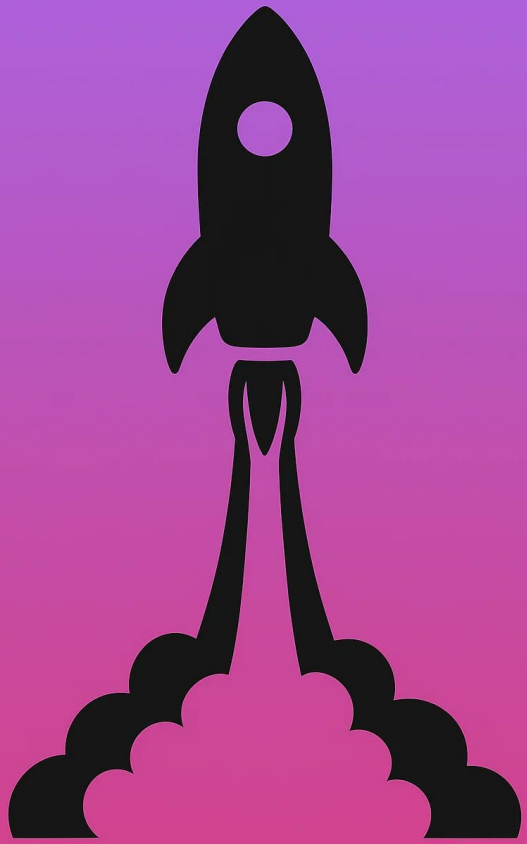
03

Use Field Methodology

During the creation of this propellant and its testing, I will familiarize myself with industry methods of fuel preparation and evaluation, determining burn time, specific impulse, and other important parameters.

Next Steps

After the creation of this fuel, I plan on building a rocket which will use along with an altimeter to test the fuel's practical capabilities, and create a fun, holistic engineering challenge.



THANK YOU

Any questions?