CF-KIT INSTRUCTIONS FOR MAKING ClusterFire LOW AMP ROCKET MOTOR IGNITERS.

NOTE: For best results use only igniter wires with a CF designation with this pyrogen. Avoid mixing or dipping igniters on a day that exceeds 80% relative humidity. *Ohm check all igniter wires before dipping.

CAUTION: First and foremost think safety. You should only mix these chemicals in a well ventilated area away from any heat source or sparks. To maintain a good seal for long term storage keep the lid tight and sealing surfaces free from any unused pyrogen. The use of eye protection is highly recommended. **Never allow small children near these chemicals.** Wear only cotton clothing and a long sleeve shirt to protect your arms in case of a flash fire. Always use a remote firing device when test firing. Once mixed, never store this product inside an inhabited area. Store this product in an environment that will be maintained between -20 to 140 degrees F. Wash hands thoroughly after each use. *Resistance readings before dipping for CF igniter wires should be around 0.8 of an ohm (+) or (-) 0.3 of an ohm. **NOTE: CF-SS should be 2.0 ohms (+/- .5 ohm).** Dispose of any leftover unwanted pyrogen in accordance with all applicable laws. **This product contains magnesium, in the event of a fire it will burn at 5,400 degrees F, never attempt to extinguish! Instead, run away as fast as you can!**

1.) Shake the glass bottle (**A**) containing the inactive pyrogen back and forth for several seconds then place the bottle on a flat level surface and remove the cap. Using the provided wooden stick, stir the contents until well mixed. Once mixed leave the wooden stir stick in the bottle.

2.) Next, after first shaking for a few seconds, remove the cap from the plastic bottle (**B**) containing the white powdery oxidizer. Then cut out the bottom of the provided paper cup (*about a 1/2 inch from the end*) and use this as a funnel. Place the funnel over and down the wooden stir stick until it rest on top of the glass jar containing the pyrogen. Next, add half of the oxidizer to the pyrogen at a time and stir the oxidizer into the pyrogen using the provided wooden stir stick. Continue the stirring process for at least a couple of minutes after bottle B has been completely emptied**.**
Note: Using the provided plastic pipette add 1ml at a time of thinner (bottle D) during this process to maintain proper consistency.

3.) **VERY IMPORTANT:** The pyrogen should now have the consistency of Hershey's chocolate syrup at room temperature. When you remove the wooden coffee stir, the pyrogen that is clinging to it should quickly run off. If the pyrogen appears too thick, take the provided pipette and draw up 1ml of thinner (Acetone) and add it to the mixture. Keep adding 1ml at a time until the pyrogen reaches the proper consistency. If you add too much thinner and the pyrogen becomes too thin or runny just leave the lid off of the bottle for as long as necessary while occasionally stirring the mixture until the pyrogen thickens to the right consistency.

4**.) BLUE TEXT ONLY APPLIES TO CF-24, CF-48 and CF-SS WIRES.** Now take the igniter wire in your hand (*do not unwrap it yet)* and bend the protruding element end 90 degrees away from the main body of the wire lead, making a V shape. Next, lower the igniter wire into the pyrogen until the pyrogen coats all of the exposed element wire. You can and probably should continue to lower the igniter wire beyond this point if you feel you need more. Now lift the igniter slowly out of the pyrogen. Once you have cleared the pyrogen in the bottle gently shake the igniter wire up and down in a rapid fashion several times until one or two drops of pyrogen fall off the igniter head and back into the bottle. ***NOTE: If you see more than two drops of pyrogen fall from the igniter the pyrogen is too thin. Also, you should stir the pyrogen every 4 to 5 minutes during the dipping process to prevent the magnesium from settling to the bottom***. Place the igniter down on the edge of a table. Cure out times range from 1 to 2 hours depending on whether you have folded the igniter wire onto itself. *See the note below for more details.

*NOTE: If there is room in the core of the rocket motor you may wish to increase the amount of pyrogen on the end of the igniter by folding about an inch of the lead wire back onto itself, making a shape similar to the letter U. After folding the wire squeeze the wire together. You will notice that there is a slight gap in the very end of the lead wire where your fold started; you want this as it will hold extra pyrogen. If you feel you need to fold the wire an additional time make sure you fold it in such a way so that the element wire is to the outside otherwise the igniter may POP rather than ignite. In other words do not sandwich the element wire between the lead wires.

MATERIAL SAFETY DATA SHEET

Date last revised 08/28/24

I. GENERAL INFORMATION

Chemical Name & Synonyms: *N/A*
Trade Name & Synonyms: *Initiator Kit*
Chemical Family: *Plasticizers*
Formula: *Trade Secret*
Product ID: *CF-ML KIT*
CAS #: *N/A*
Proper DOT Shipping Name: *Flammable Liquid, n.o.s UN1993*
DOT Hazard Classification: *3*
Manufacturer: *ROCKETFLITE, LLC.*
Manufacture Phone#: *269-366-1536*
Manufacturer's Address: *3107 Bremen Hwy. Mishawaka, IN.USA 46544*
Contact Person: *Greg Dyben* **E-mail:** *Visit our website and use the contact form to send us an e-mail message.*
Emergency Telephone #: *Not required*
WWW.ROCKETFLITE.COM

II. INGREDIENTS

Principal Hazardous Component*: Acetone. Mixture is considered a Trade Secret. The remaining chemical names of this kit will be disclosed per i.a.w.29 CFR 1910.1200 (i) subpart (2) Medical Emergency Exceptions.*
Percent Threshold Limit Value (units)
This product **DOES NOT** contain any lead, lithium, mercury, radioactive, sulfur or phosphor compounds.

III. PHYSICAL DATA

Boiling Point (F) *56.1'C / 132.8 Degrees F (liquid)*
Specific Gravity (H20=1) 0.79
Vapor Pressure (mmHg) 30.93 kPa at 25'C
Percent Volatile by Volume (%) *73*
Vapor Density (Air=1) *2.0*
Evaporation Rate: 5.6 BuAc
Solubility in Water: *Resin precipitates when in liquid form.*
pH: *NA*
Appearance and Odor*: Grayish black color, sweetish odor*
Melting Point: *NA*

IV. FIRE & EXPLOSIVE HAZARD DATA

Flash Point (Test Method) *30 Degrees F (closed cup)*
Auto Ignition Temperature: 465'C / 869'F
Flammable Limits In Air*:* **LEL** *(ACE) Lower 2.6%* **UEL** *(ACE) Upper12.8%*
Extinguishing Media: *Graphite, Talc, Dry Sand or Metal Extinguishing Agents DO NOT USE WATER, FOAM, HALOGENS OR CO2.* **Special Firefighting Procedures:** *Wear SCBA and protective clothing, use of water on molten or burning magnesium will produce hydrogen gas on contact and may cause a violent explosion.* ***CAUTION : THIS PRODUCT CONTAINS MAGNESIUM POWDER***. **Unusual Fire & Explosion Hazards:** ***DO NOT USE WATER, FOAM, HALOGENS OR CO2.***

V. HEALTH HAZARD DATA

Threshold Limit Value: **OSHA Threshold Limit Value:** **OSHA Regulated:** *NO* **ACGIH Threshold Limit Value: Carcinogen-NTP Program: Carcinogen-IARC Program:** **HMIS Codes:** Health: 2, Flammability: 3, Physical: 0 **Symptoms of Exposure:** *Eye & skin irritation, moderately toxic, vapor may cause headaches and dizziness.*
Medical Conditions Aggravated by Exposure: *May aggravate existing dermatitis, asthma and fibrotic pulmonary disease.*
Primary Route(s) of Entry: *Ingestion, skin eyes and inhalation.*
Emergency First Aid: *Swallowing - Do not induce vomiting. Do not give anything to drink. Obtain medical attention without delay. Inhalation - Remove to fresh air, if breathing is difficult obtain medical attention without delay. Eyes - Immediately flush with water for at least 15 minutes, obtain medical attention without delay, preferably from an ophthalmologist. Skin - wash thoroughly with soap and water. Seek medical attention if irritation persists. Note: This product contains Magnesium Powder.*

Exposure Limits: **ACGIH: TWA:** 500ppm, **STEL:** 750ppm, **BEL**: 50mg/L, **OSHA: PEL:** 1000ppm - 2400mg/m3

VI. REACTIVITY DATA

Stability: *Stable*
Conditions to Avoid: *Heat, ignition sources, (spark, flame).*
Incompatibility: *None Known*
Materials to Avoid: *None Known*
Hazardous Polymerization: *Will Not Occur*
Hazardous Decomposition Products: *Carbon Monoxide, Carbon Dioxide, Hydrogen Chloride.*

VII. ENVIRONMENTAL PROTECTION PROCEDURES

Spill Response: *Wear suitable protective equipment in case of accidental flash fire during clean up. If fire occurs let it burn out before attempting collection for disposal. If possible avoid any runoff to sewer or waterways.*
Waste Disposal Method: *Incinerate in furnace where permitted under appropriate federal, state and local regulations.*

VIII. SPECIAL PROTECTION INFORMATION

Eye Protection: *Safety glasses with side shields or goggles with full face shield.* **Skin Protection:** *Gloves* **Respiratory Protection (Fume or Vapor cartridge)** *Only in high concentrations* **Ventilation Recommended:** *Only in high concentrations*

IX. SPECIAL PRECAUTIONS

Hygienic Practices in Handling and Storage: *Wash hands thoroughly after handling. Once mixed* ***NEVER*** *store this product in an inhabited building.*