

Purple Propellant

Fast Variation

Presented by 1020 Research Labs



History

This formula was a happy accident when I wanted to see if I could promote a red formula with a small amount of Copper Chromite. Blue is very hard to wash out with red from the Strontium Nitrate and what I ended up with was a Purple Fuchsia flame. I have flown this formula in 38mm and 54mm cases and it has always been a crowd pleaser. Easy to ignite comes up to pressure very fast. This formula works very well in Kosdon cases with standard Kosdon nozzles. A starting KN of 210 – 230 and a max KN of 250 - 260 will obtain similar results to what I have had.

Mixing Instructions

Measure out the R45 into your mixing bowl. Add the Tepanol and mix by hand until thoroughly combined. Add the CAO-5 anti oxidant to the bowl and mix well. At this point I add the IDP but I don't mix it in yet. It will pool on top of the R45. Next I add the Magnesium to the bowl and let it rest for a moment. The liquid IDP will soak into the Mg and wet it out. Now I start mixing by hand until the mixture is smooth and thoroughly combined. The Copper Chromite is added next and mixed thoroughly. Be sure to avoid dusting. Next measure out the Strontium Nitrate. Be sure to dry and screen the Strontium Nitrate before using. Measure and screen the AP next and add it to the bowl. I stir it in by hand before moving the bowl to the mixer. I like to use a timer. I mix for 15 minutes and scrape down the sides and bottom of the bowl every three minutes. At the end of 15 minutes I add the curative and mix again for 15 minutes scraping down every 3 minutes. At this point I vacuum the mixture for 2 – 3 minutes before packing. After packing I clean the bowl and mixing equipment with Simple Green and finish off with acetone. Use paper towels to clean every thing well and burn them when you are done. I pull my mandrels 4 – 6 hours after packing and you can burn the grains after 24 hours.

Purple Formula

R45HTLO	12.11%
IDP	1.51%
Tepanol	0.50%
CAO-5	0.12%
Aluminum or Mg	0.50%
Copper Chromite	0.20%
Strontium Nitrate	19.50%
AP200	63.30%
E744	2.26%

BR Coefficient (a) : 0.0215
BR Exponent (n) : 0.3866
Burn Rate : 0.26 in/sec
Density : 0.0583 lb/in³
ISP* : 185 sec
Spec. Heat Ratio : 1.229