

## COLD WEATHER AMMO

Dear Technoid,

I have a question on Rio ammo and other similar European single base shotshell powders. Is there any problem with single base powders being effected by cold weather. I have been told that this type of powder may not burn properly in cold temps.

From Rios website their ammo seems to be made of quality components. I have emailed their website and have not had a response to my questions.

Since the Technoid knows all on shotgunning, your advise is being sought!

Long time reader, first time inquirer.

Mark

Dear Mark,

You are right. I know almost everything about shotgunning. Almost. Well, actually, just some of it. To tell the truth, most of what I know I have cribbed from people who actually do know what they are talking about. My wife assures me that my actual knowledge is extraordinarily limited.

The practical differences between single base powders (the polymer nitrocellulose) and double base powders (nitrocellulose and nitroglycerin) have never been particularly clear to me. A double base powder contains more energy, so you need less of it. Adding nitroglycerin reduces hydroscopicity (water absorbtion). Double base powders are also considered cleaner.

Single base powders are often slower and thus more often seen in heavier loads. They are bulkier than double base powders. They also burn cooler than double base powders, so hulls last longer if reloading.

As to temperature sensitivity, according to ADI, an Australian powder maker, they use single base powders because of their temperature insensitivity. At least that's how I read this: "ADI's rifle powders are all single base perforated tubular propellants of single base composition based on ADI's experience in developing powders for the Australian Defence Force's use in extreme climatic conditions. As a consequence, all rifle powders have, as a feature, low ballistic temperature coefficients with velocities and pressures not varying with ambient temperature unlike most other powders currently available for reloading." <http://www.adi-limited.com/2-02-120-000-000.htmlp>

I'm confused by ADI's statement as I know that Accurate Arms Nitro 100 double base powder is acclaimed to be particularly temperature insensitive. Perhaps

temperature sensitivity has more to do with other aspects of the powder's makeup than just the addition of nitroglycerin.

I shoot a lot of Kemen ammo here in Florida. Kemen is one of the many brands that is made by Rio. Obviously low temperatures are not an issue here. The ammo has seemed of excellent quality, especially considering the price. Locally it costs about 1/3 less than Remchester high end target ammo. I don't think that the shot is 6% antimony like Rem STS, but it's not 2% like Rem Gun Club either. We use a lot of the 24 gram Kemen 1350 fps bunker loads when shooting Olympic trap. This is a real test of pellet performance and these Kemens have done very well indeed.

I guess that the best way to make sure of cold weather performance is to put a box of the test ammo in the freezer and then chronograph it. Just be aware that powder is only one aspect of cold weather performance. I used to have terrible problems in cold weather with PC wads in my 28 gauge. Switching to Remington wads solved the problem, so PC must have been having problems with their poly blend at the time. If I hadn't experimented with the wads, I might have thought that it was a powder issue, which it wasn't. Both Unique and Universal, my two 28 gauge powders of choice, are double base.

Bottom line: I just don't know the answer to your question. I do know that it gets just as cold in Europe as it does here, so if their single base shells had ignition problems it would plague them just as much as it would us.

Best regards,

Bruce Buck  
Shotgun Report's Technoid