POWDER

Reloading Powder Facts

Welcome to all you might want to know about reloading powder!

- You have a set of questions.
- Please take a few minutes to read through and jot down a few ideas for each question.
- Now we will try to answer these with our collective knowledge.

1 - What are the different types of reloading powder?

- **Pistol powders:** Fast-burning and double-based, made for short barrels. ...
- **Shotgun powders:** Fast-burning and double-based, made for low pressure. ...
- **Rifle powders:** Slow-burning, made for long-barrels and maximum velocity.

2 - What are some interesting facts about gunpowder?

- The heat given out by the combustion of gunpowder is 1,145 Fahrenheit.
- The temperature of the flame must be 5,390.
- The tension of the gases at the moment of explosion does not exceed 4,373 atmospheres, in place of 50,000 or 100,000, at which it has been estimated.

3 - What is the oldest gunpowder?

- Gunpowder was invented in China sometime during the first millennium AD. The earliest possible reference to gunpowder appeared in 142 AD during the Eastern Han dynasty when the alchemist Wei Boyang, also known as the "father of alchemy", wrote about a substance with gunpowder-like properties.
- The next reference to gunpowder occurred in the year 300 during the Jin dynasty (266–420). A Taoist philosopher by the name of Ge Hong wrote down the ingredients of gunpowder in his surviving works, collectively known as the Baopuzi ("The Master Who Embraces Simplicity").
- The first confirmed reference to what can be considered gunpowder in China occurred more than three hundred years later during the Tang dynasty
- The earliest surviving chemical formula of gunpowder dates to 1044[18] in the form of the military manual Wujing Zongyao, also known in English as the Complete Essentials for the Military Classics, which contains a collection of entries on Chinese weaponry.[19][20] However the 1044 edition has since been lost and the only currently extant copy is dated to 1510 during the Ming dynasty.

4 - Is black powder stronger than gun powder?

- NO.
  - Black powder is a very low yield explosive.
  - It burns at the same rate whether it is confined in the chamber of a firearm and ignited or poured out on the ground and ignited.

5 - What is in smokeless gun powder?

- Smokeless powder consists of nitrocellulose (single-base powders), frequently combined with up to 50 percent nitroglycerin (double-base powders), and sometimes nitroglycerin and nitroguanidine (triple-base), corned into small spherical balls or extruded into cylinders or flakes using solvents such as ether. Other minor ingredients, such as stabilizers and ballistic modifiers, are also added. Double-base propellants are common in handgun and rifle ammunition. Triple-base propellants are more common in artillery guns.
- The reason that they are smokeless is that the combustion products are mainly gaseous, compared to around 55% solid products for black powder (potassium carbonate, potassium sulfate etc).

6 - Is there a gunpowder without Sulphur?

- They typically contain 70.5 parts of saltpeter and 29.5 parts of charcoal. Like black powder, they were produced in different grain sizes. In the United Kingdom, the finest grain was known as sulfur-free mealed powder (SMP).
- Sulfur-free powder that is available was the "CLEARSHOT" brand. Its an absorbic acid base "vitamin C" and yes its still corrosive powder.

7 - Where is saltpeter found?

- Potassium nitrate, or saltpeter, is a naturally occurring mineral that is vital to the production of gunpowder. Found in limestone caves in the Arkansas Ozarks, it became one of the state's most important chemical industries during the Civil War due to the Confederacy's demand for arms.

8 - Does it matter what gun powder you use?

- Specifics will change by cartridge and bullet type, but in general a fast-burning powder is used for light bullets and low-speed pistols and shotguns. Medium-rate powders are used for magnum pistols, while high-velocity, large bore rifle cartridges will need slow powders, as they deliver the most overall power.
- The shape has a direct impact on “metering,” which is a term for how consistently the powder measures. If someone says a powder “meters well,” it means it can be measured with greater precision.

Ball Powder

- Ball powder consists of tiny spheres that can generally be manufactured more rapidly, often reducing the cost of the final product. It meters better, resulting in more accurate loads and can have a greater shelf life compared to other powders. Many ball powders will burn at lower temperatures, which should extend the life of a barrel.

Flattened Ball Powder

- This is a product that is very similar to typical ball powder, but has a flattened, oval shape, similar to a ball of bread dough. This powder is known to deliver similar results as spherical ball powder. Flattened powder is generally preferred in shotgun shells. This is because the shape minimizes powder movement in the shell, keeping it from moving into compressible areas like the back of the wad.

Flake Powder

- This type of powder has granules that are shaped like tiny discs. They are essentially powder that is extended into a tube shape and cut into tiny sections, almost like cutting a very tiny summer sausage. They are used mostly in handgun and shotgun cartridges. Because of their shape, they can stack up when measuring, making it difficult to meter with precision. This leads to reduced consistency when reloading cartridges with flake powder.

Stick Powder

- Shaped like small cylinders, this is the type of powder that is most popular for rifle cartridges.

While highly-effective in rifle ammunition, stick powder is difficult to meter accurately and can lead to inconsistencies in the measurements. While stick powder is often considered the most difficult to meter, reducing the length of the “sticks” can make for more consistent loading. The cylinders, or sticks, may break, leading to further inconsistencies. Most stick powder burns hot, which could reduce barrel quality over time. Despite potential reloading drawbacks, stick powder is a popular choice for shot consistency and accuracy.

9 - What can set off gun powder?

- Black powder is relatively insensitive to shock and friction and must be ignited by flame or heat. Though it has largely been supplanted by smokeless powder as a propellant for ammunition in guns, black powder is still widely used for ignition charges, primers, fuses, and blank-fire charges in military ammunition.
- Smokeless powders are not actual explosives. They burn - but end up generating much more pressure (but taking a bit longer to do it) than black powder.

10 - Does gun powder lose its potency?

- People are still uncovering unexploded bombs from WWII. Local authorities often dispose of those bombs by exploding them. Yup, the things remain viable and dangerous after more than 65 years. So does gunpowder and hunting ammunition. *Sort of*. The smokeless gunpowder inside old rifle cartridges is quite stable and could be as potent today as it was the day it was loaded, therefore such ammunition can be dangerous if it's chambered into a suitable rifle and fired.
- The cartridge itself – and the powder within it – are no more "dangerous" than a brand new cartridge. This is because modern gunpowder (smokeless) is not an explosive.
- Nitrocellulose gunpowder does deteriorate with time, moisture and heat, but it becomes less potent, not more.
- Check for deterioration by three factors: strong smell, rust colored kernels (or rusty dust) and warm to the touch. [If] Any of these are present GET RID IF IT. Old powder makes great fertilizer for the lawn. "So sprinkle it in your garden or lawn and water it down.

11 - Does water ruin gun powder?

- Allowing small amounts of moisture to contact the powder will alter the burn rate by an unpredictable amount, rendering the powder unfit to use in a firearm, but by no means non-explosive. This is widely assumed to be due to the cooling effect.

12 - What does humidity do to powder?

- Powders stored in humid environments can take on unwanted surface moisture, which can hinder flow as well as alter material properties. However, environmental moisture can also be of benefit, for instance by providing a conductive path to dissipate electrostatic charge or acting as a lubricant to improve flowability.

13- What is the best humidity for gun powder?

- Best is between 55-65 %
- Well, it seems we need to forget the old saying “Keep your powder dry”! Instead, focus on proper powder storage, at a temperature below 20°C / 68°F and humidity between 55-65 %. Safe reloading everybody!

14 - Where is the safest place to store gunpowder?

- STORE IN A COOL, DRY PLACE.
- Be sure the storage area selected is free from any possible sources of excess heat and is isolated from open flame, furnaces, hot water heaters, etc.
- Do not store smokeless powder where it will be exposed to the sun's rays.

15 - How long is reloading powder good for?

- When properly stored, powder used for reloading ammo can last for many decades and even beyond.
- Some of the best ways to extend the lifespan of reloading powder include:
- Protect it from moisture.
- Store it in a dark, cool place.

16 - What is the best quality gun powder?

- Many shooters are fans of Hodgdon H4895 and Varget smokeless powder, as well as Accurate 4350 powder. They're fine choices for a large, diverse set of bullets and cartridges.
- Another popular candidate for best all-around smokeless rifle powder is IMR 4350 smokeless powder.

17 - What is the best powder for pistol reloading?

- If you're loading magnum rounds, you might want to try a slow-burning powder like Hodgdon H110 or Accurate 5744.
- For a 38, 380, 25 auto, and 9mm, Winchester 231 is always an excellent choice. A powder that deserves a place in every handgun reloader's arsenal.

18 - What is the best powder for rifle reloading?

- Hodgdon H4895 and Varget smokeless powder, as well as Accurate 4350 powder. They're fine choices for a large, diverse set of bullets and cartridges.
- Another popular candidate for best all-around smokeless rifle powder is IMR 4350 smokeless powder. It can be used with everything from small rifle loads to small magnum rifle loads, and is ideal for deer and other North American game. Due to its larger granular size, it flows and meters well in most powder measures.

19 - What is the cleanest gunpowder?

- Vihtavuori Pistol Powders: Accurate and Clean Burning.
- Vihtavuori powders have a reputation for being some of the cleanest burning powders available.

20 - Does gunpowder work without oxygen?

- Carbon in a fire must draw oxygen from the air, but the saltpeter in gunpowder provides the oxygen.
- When heated, the sulfur ignites first, which in turn burns the charcoal fuel, raising the temperature to the point that it literally tears the nitrate molecules apart, releasing the oxygen which aids the combustion.

21 - What is the smell after you shoot a gun?

- Acrid, with a hint of rotten egg.
- Modern smokeless powder has a very distinct smell.
- The powder is made out of carbon soaked with nitroglycerin, then coated in graphite. This mixture is then pressed into small, granular pellets.

22 - What does +P in ammo mean?

- Overpressure ammunition, commonly designated as +P or +P+ (pronounced "Plus-P"/"Plus-P-Plus"), is small arms ammunition that has been loaded to produce a higher internal pressure when fired than is standard for ammunition of its caliber (see internal ballistics), but less than the pressures generated by a proof round.
- A "proof round" is an ammunition assembly designed to be used in proof testing; this can use a fixed cartridge, a semi-fixed cartridge, or separately loaded projectile, charge and primer.

23 – What is Burn Rate?

- While a gun powder explosion in the cartridge seems instantaneous, if you slow it down you will actually find that each powder has a different “burn rate,” or speed at which it ignites. This is similar to how gasoline burns faster than lighter fluid.
- It should be noted that burn rate, does not have a standardized unit of measurement. In fact, burn rate is really only discussed in comparison to other powders; there is no universal yardstick. This makes burn rate a slightly controversial and highly-debated topics, as some reloaders feel that burn rate is less important or practically inconsequential.
- Burn rate is important, however, when you are loading magnum vs. non-magnum rounds. Typically, a non-magnum load will use faster burning powders while a magnum cartridge will need slower burning powders. Magnum rounds need to generate greater power. Therefore, they use slower-burning powders, which creates peak pressure for a longer timeframe. This is also needed to give the heavier bullet maximum power and velocity.

Burn Rate

Burn Rate Chart

RELATIVE BURN RATES FROM FASTEST TO SLOWEST (rev. Oct '22)

1 Norma R1	58 ACCURATE 4100	116 ALLIANT RELODER 15.5
2 VIHTAVUORI N310	59 ALLIANT STEEL	117 ALLIANT POWER PRO 2000-MR
3 ALLIANT EXTRA-LITE	60 NORMA R123	118 HODGDON LEVEREVOLUTION
4 ACCURATE NITRO 100	61 VIHTAVUORI N110	119 HODGDON H380
5 ALLIANT e3	62 HODGDON LIL' GUN	120 RAMSHOT BIG GAME
6 HODGDON TITEWAD	63 HODGDON H110	121 VIHTAVUORI N150
7 RAMSHOT COMPETITION	64 WINCHESTER 296	122 ALLIANT POWER PRO 4000-MR
8 ALLIANT RED DOT	65 ACCURATE #11 FS	123 WINCHESTER 760
9 ALLIANT PROMO	66 IMR 4227	124 NORMA URP
10 HODGDON CLAYS	67 ALLIANT POWER PRO 300-MP	125 VIHTAVUORI N550
11 ALLIANT CLAYDOT	68 ACCURATE 5744	126 ACCURATE 2700
12 HODGDON HI-SKOR 700-X	69 ACCURATE 1680	127 IMR 4350
13 ALLIANT BULLSEYE	70 ACCURATE LT-30	128 IMR 4451
14 ALLIANT SPORT PISTOL	71 HODGDON CFE BLK	129 ALLIANT RELODER 16
15 HODGDON TITEGROUP	72 NORMA 200	130 HODGDON H4350
16 ALLIANT AMERICAN SELECT	73 ACCURATE 2200	131 ALLIANT RELODER 17
17 RAMSHOT SILHOUETTE	74 ALLIANT RELODER 7	132 ACCURATE 4350
18 ACCURATE SOLO 1000	75 ACCURATE LT-32	133 NORMA 204
19 ALLIANT GREEN DOT	76 IMR 4198	134 HODGDON HYBRID 100V
20 RAMSHOT TRUE BLUE	77 HODGDON H4198	135 WINCHESTER StaBALL 6.5
21 WINCHESTER WST	78 VIHTAVUORI N120	136 ALLIANT RELODER 19
22 HODGDON TRAIL BOSS	79 NORMA 201	137 IMR 4831
23 WINCHESTER SUPER HANDICAP	80 ALLIANT POWER PRO 1200-R	138 RAMSHOT HUNTER
24 HODGDON INTERNATIONAL	81 VIHTAVUORI N130	139 VIHTAVUORI N160
25 VIHTAVUORI N320	82 HODGDON H322	140 VIHTAVUORI N555
26 ACCURATE NO. 2	83 ACCURATE 2015BR	141 NORMA 205
27 RAMSHOT ZIP	84 ALLIANT RELODER 10X	142 HODGDON H4831 & H4831SC
28 WINCHESTER 231	85 IMR 3031	143 VIHTAVUORI N560
29 ALLIANT 20/28	86 VIHTAVUORI N133	144 HODGDON SUPERFORMANCE
30 VIHTAVUORI N32C - TIN STAR	87 HODGDON BENCHMARK	145 IMR 4955
31 WINCHESTER 244	88 HODGDON H335	146 NORMA MRP
32 ALLIANT UNIQUE	89 RAMSHOT X-TERMINATOR	147 ALLIANT RELODER 22
33 HODGDON UNIVERSAL	90 ACCURATE 2230	148 NORMA MRP2
34 ALLIANT POWER PISTOL	91 ACCURATE 2460	149 ALLIANT RELODER 23
35 VIHTAVUORI N330	92 IMR 8208 XBR	150 VIHTAVUORI N165
36 ALLIANT HERCO	93 ALLIANT AR COMP	151 IMR 7828SC
37 WINCHESTER WSF	94 RAMSHOT TAC	152 ALLIANT RELODER 25
38 VIHTAVUORI N340	95 ALLIANT POWER PRO VARMINT	153 VIHTAVUORI N565
39 ALLIANT BE-86	96 HODGDON H4895	154 VIHTAVUORI N170
40 ACCURATE NO. 5	97 VIHTAVUORI N530	155 ACCURATE MAGPRO
41 HODGDON HS-6	98 IMR 4895	156 IMR 7977
42 WINCHESTER AUTOCOMP	99 VIHTAVUORI N135	157 ALLIANT RELODER 26
43 HODGDON CFE PISTOL	100 ALLIANT RELODER 12	158 HODGDON H1000
44 VIHTAVUORI 3N37	101 ACCURATE 2495	159 RAMSHOT MAGNUM
45 VIHTAVUORI N350	102 IMR 4166	160 NORMA 217
46 VIHTAVUORI 3N38	103 IMR 4064	161 HODGDON RETUMBO
47 WINCHESTER 572	104 NORMA 202	162 WINCHESTER StaBALL HD
48 ALLIANT BLUE DOT	105 ACCURATE 4064	163 IMR 8133
49 ACCURATE NO. 7	106 ACCURATE 2520	164 VIHTAVUORI N568
50 ALLIANT PRO REACH	107 ALLIANT RELODER 15	165 RAMSHOT LRT
51 HODGDON LONGSHOT	108 NORMA 203B	166 VIHTAVUORI N570
52 ALLIANT 410	109 VIHTAVUORI N140	167 ALLIANT RELODER 33
53 ACCURATE TCM	110 HODGDON VARGET	168 VIHTAVUORI 24N41
54 ALLIANT 2400	111 WINCHESTER 748	169 HODGDON H50BMG
55 RAMSHOT ENFORCER	112 WINCHESTER StaBALL Match	170 HODGDON US869
56 VIHTAVUORI N105	113 HODGDON BL-C(2)	171 ALLIANT RELODER 50
57 ACCURATE NO. 9	114 VIHTAVUORI N540	172 VIHTAVUORI 20N29
	115 HODGDON CFE 223	

24 - Can human ashes be used as gunpowder?

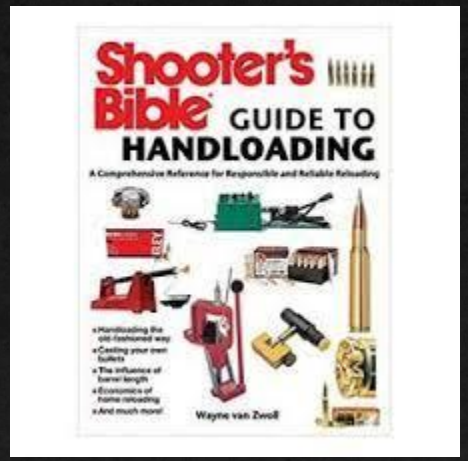
- Just like ashes can be added to the gunpowder for fireworks, it can be done the same for guns and bullets. If you happen to enjoy spending time hunting with your loved one and you want to be able to go hunting with them one last time, or shoot a target in their memory, this is a great way to do it.

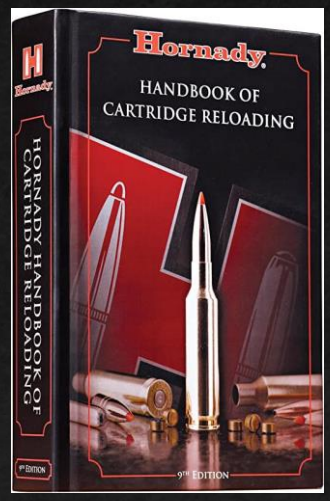
Which Do You Choose?

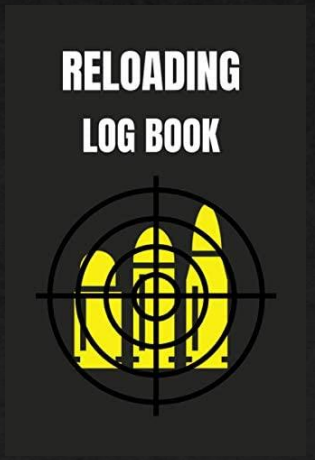
Summary

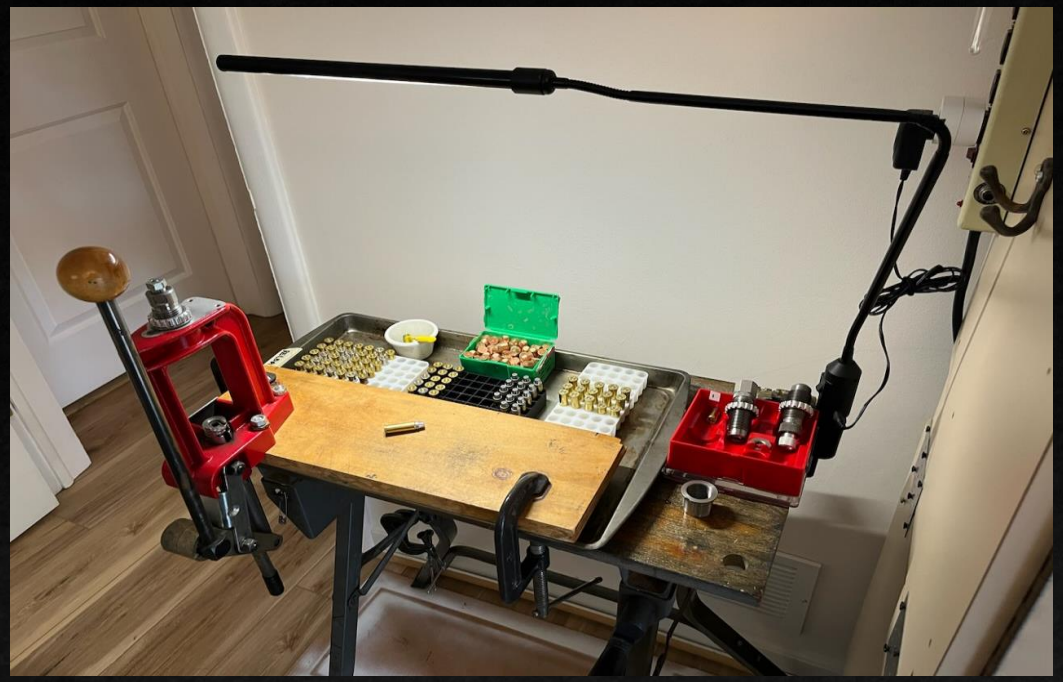
Here is what we learned

- **There is a lot of powders out there.**
- **Decisions have to be made.**
- **Most of all: RELOADING IS FUN!?!**









THANK YOU FOR YOUR PARTICIPATION WITH THE CMP RELOADING GROUP.

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