Type of magnet	Surface gauss	Tonal characteristics
AlNiCo II	7,500	Midheavy, spongy bass, and compressed. They tend to give pickups a thick smooth, gritty tone that is great for rock leads and blues.
AlNiCo III	7,000	Open, clear, balanced, smooth, and mellow. Its particularly good in the neck position because it's it doesn't boom like alnico 2 and 5 do.
AlNiCo IV	5,600	These have a low output but their tone is surprisingly bright, clear, and defined. It was a very common in vintage PAF's and it really helps you get a nice bite without sounding too aggressive.
AlNiCo V	12,800	The most powerful and aggressive of the alnico magnets. It's got a very prominent upper midrange bite that is great for pushing your amp and cutting through a mix.
AlNiCo VIII	8,300	This is a magnet that is relatively new and expensive. It has an aggressive, Powerful, bright tone that sounds quite modern and it cleans up nicely too.
Neodymium 42	13,500	It's got higher highs, lower lows, more power, cleaner cleans, quicker attack, it's more sensitive, and more aggressive than any other magnet I've used. When used correctly it can sound amazing in pickups. The key is that it's explosive power has to be harnessed and controlled. That is why it tends to sound best in pickups with high DC resistances.
Ceramic 8	3,850	Open with strong treble, scooped mids, and tight bass. Ceramic magnets have a wider frequency range than alnico and sound full and balanced when you are using high gain

Key terms you should know.

Scooped mids is a term we use when talking about tone. It means there is noticeably less midrange than there is bass and treble. Sometimes we sound guys will say scoop the mids a litle and what they mean is turn the midrange down. This term isn't directly connected to magnets but it is used when describing the tone of some magnets and because a lot of people don't know what it means I thought I would include it.

Gauss is the magnetic pull of a magnet. Increasing the gauss of a magnet will increase treble and overall output of a pickup. Different types of magnets sound dramatically different even they have the same gauss.

Degauss is demagnetizing a magnet. Modern magnets have a greater magnetic pull than vintage magnets so after a magnet is fully charged, it can be degaussed to to make it sound more vintage.

Surface field is basically the gauss at the surface of the magnet. The surface field changes dramatically with the size, shape, and type of the magnet. A neodymium 42 magnet that is .5 x .125 x .5 will have a surface gauss of about 4,200 while an alnico 5 magnet of a similar size have a maximum surface gauss of around 1,100. The surface field has a more dramatic effect on output and tone than the actual gauss because the surface field is what "sees" the strings move and it's what passes energy into the pickup.

Conductive magnets allow the electrical signal generated inside the pickup to pass through the magnet which changes the pickups inductance, capacitance, and AC resistance. There are many types of conductive magnets with alnico being the most common. The most noticeable effect conductive magnets have on tone is the complex, gritty overtones that it adds to the midrange and make our clean tones more interesting and it makes our low output pickups sound louder than they really are.

Nonconductive magnets don't have an effect on the pickups inductance, capacitance, and AC resistance. Pickups with nonconductive magnets tend to have a tighter bass, less midrange, and brighter high end. They usually hold together better when you are down tuning and they can sound very tight, controlled, and balance when you use high gain. The downside of nonconductive magnets is that clean tone seems to lack depth and is often described as sterile.

Alnico is a family of conductive magnets made of aluminum, nickel, and cobalt. There are many different alnico alloys and they all sound different. Vintage fender pickups used alnico 5 almost exclusively while Gibson seemed to simply order "alnico" and didn't actually specify a type. This is why my vintage style pickups based on Fender designs all use alnico 5 magnets but my vintage pickups based on Gibson designs use a whole range of different alnico magnets.

Ceramic (Ferrite) are a family of nonconductive magnets. They have lower gauss than alnico but because they are nonconductive they still manage to have more output, and clarity than alnico. Ceramic magnets have a tendency to sound lifeless and thin when you are playing clean but that isn't always the case.

Neodymium magnets are very strong, rare earth magnets.. They produce a very wide frequency range and they have an aggressive, clear high end, scooped midrange, and tight bass. Coming up with useable designs with neodymium is hard and expensive which has made it a very rare magnet for pickup makers but there are a few of us that have put in the work and gotten great results. When done right, neodymium can give you rich complex cleans that sound as dynamic as an acoustic guitar and they can make passive pickups rival actives in terms of output. The tone from neodymium is dramatically different than any other magnet and people will need time to accept it, but I believe it's going to really take off in years to come.