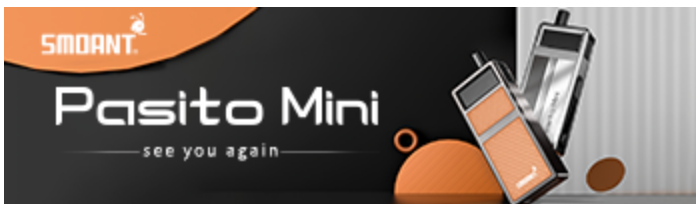



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New Builder: Kanthal vs Nichrome -- Help I don't understand

[NitroBex](#) · [Jun 4, 2014](#)



NitroBex

The Cloud Chasing
Geek

VU Donator

Bronze Contributor

Jun 4, 2014

[#1](#)

What is Resistance Wire?

Resistance wire is a high-resistance electrical wire that is often found in industrial applications including electrical ovens, toasters, and heating elements. The two major types of resistance wire are Kanthal and Nichrome wire. Kanthal is a ferritic iron-chromium-aluminum alloy that can be in high temperature applications. It is often used in large, industrial applications and chosen for its high resistivity and excellent oxidation resistance.

Member For 4 Years

Show Host

Reviewer

Vape Media

VU Live Host

Nichrome is made from nickel-chromium alloys is generally only used in temperatures below 1250°C. Nichrome has a slightly lower maximum operating temperature than Kanthal and operates best applications such as hair dryers, toasters, and kilns.

Corrosion, Rusting, and Oxidation

Resistance wire does not easily rust or oxidize, even in extreme environments. Kanthal is often chosen for its excellent oxidation resistance. It can be exposed to sulfuric compounds and not corrode quickly, making it well suited for corrosion resistance in hot states. Nichrome has similar properties but oxidizes more quickly than Kanthal in sulfur-containing atmospheres.

"Annealed" vs. "Half-Hard"

The terms "annealed" and "half-hard" refer to the temper of the metal, or the condition produced by mechanical treatment. Annealed wire can be shaped and cut easily, making it relatively flexible, soft, and bendable when pressure is applied. An annealed surface is achieved by exposing the metal to high heat and allowing it to cool slowly. Half-hard treatment refers to rolled and drawn wire.

Temperature Ratings

The Maximum Operating Temperature refers to the highest temperature the wire can withstand without suffering damage. Kanthal wire can operate up to 1400°C (2550°F) safely, while Nichrome wire has a melting temperature around 1150°C (2100°F).

Resistance

The more heat the wire generates, the more resistance it creates. Resistance is affected by volume, diameter, and the length of wire. The longer the wire, the higher the overall resistance. Thinner wire has higher resistance than thicker wire.

Thermal Expansion

Resistance wire expands in diameter and length when exposed to high temperatures. All resistance wire has different reactions to heat and will expand different amounts. To determine the expansion of either Kanthal wire or Nichrome wire, check the specifications of the wire. The expansion rate and flexibility also depends on the diameter, or gauge, of the wire.

Specifications

Nichrome 60

- Melting Temperature: 1350°C (2462°F)
- Maximum Operating Temperature: 1150°C (2100°F)
- Density: 0.2979 lbs/cubic in.
- Specific heat capacity @ 68°F: 0.11 Btu/lb°F
- Thermal Expansion: 14 x 10 to the -6 per °C



Kanthal A1

- Melting Temperature: 1500°C (2732°F)
- Maximum Operating Temperature: 1400°C (2550°F)
- Density: 0.256 lbs/cubic in.
- Specific heat capacity @ 68°F: 0.11 Btu/lb°F

Kanthal D

- Melting Temperature: 1500°C (2732°F)
- Maximum Operating Temperature: 1300°C (2370°F)
- Density: 0.262 lbs/cubic in.
- Specific heat capacity @ 68°F: 0.11 Btu/lb°F

CashNVape, py3zan, Ramsay Bolton and 7 others

**mids**

Member For 5 Years

Jun 25, 2014

#2

I love my Kanthal A1

losttexan

**losttexan**

Member For 4 Years

Member For 3 Years

Member For 2 Years

Member For 1 Year

Member For 5 Years

Jun 25, 2014

#3

I agree. I like A1 too. Has any tried GPlatt?

**Bahas**

Bronze Contributor

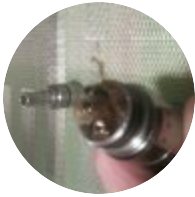
Member For 4 Years

Jun 26, 2014

#4

I have wanted to try G-plat sounds like it would be great to use, but if what some people who reviewed it is true that it gives an even better flavor profile though when you go back to A-1 the taste is muted it seems it would just make you need to spend more to get the G-plat from here on out. Though it is one of those things I want to try out just leery of pulling the trigger and doing it.





CloudMaker

Member For 4 Years

Member For 3 Years

Member For 2 Years

Member For 1 Year

Member For 5 Years

Jun 26, 2014

#5

Great now I need to learn about a new type of wire.....
Oh well Why Not



Kemosabe

Bronze Contributor

Member For 4 Years

Jun 26, 2014

#6

i would prefer g-plat to be sold under its actual name. kanthal is kanthal. nichrome is nichrome. its not "K-Great" and "N-Awesome" for a reason. G-Plat is not a very good name in my opinion. it tells us nothing. with vaping, I value transparency. although we still need more tests on kanthal and nichrome, at least we know what is in them so we can make a more educated decision to use it or not. im told more info on g-plat is forthcoming, so hopefully that helps us. it sure sounds good but at the same time ive been having spectacular results with kanthal for the last couple of years. if it aint broke...

dfoster_6215



Kilz

Jun 27, 2014

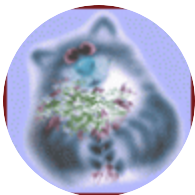
#7

Grimgreen reported in his vlog of 6/26/2014 that there is a report of manganese in g-plat. If thats the case I wouldnt vape with it with a 10 foot drip tip.

Here is why

[http://www.lenntech.com/periodic/elements/mn.htm#Health effects of manganese](http://www.lenntech.com/periodic/elements/mn.htm#Health%20effects%20of%20manganese)

jack



LadyBren

Member For 4 Years

Member For 3 Years

Member For 2 Years

Jun 28, 2014

#8

I saw that same vlog from Grim and agree, until the tests come back on what is really in G-Plat, it just isn't worth the risk
I use Nichrome 80. I like the taste better, I wish I could use Kanthal but to me it tastes like metal, I can't use metal drip tips for the same reason.



Member For 1 Year

Member For 5 Years

**Pancho_Brown**

Silver Contributor

Member For 4 Years

Member For 3 Years

Jun 30, 2014

#9

LadyBren said: ⬆

I saw that same vapellog from Grim and agree, until the tests come back on what is really in G-Plat, it just isn't worth the risk
I use Nichrome 80. I like the taste better, I wish I could use Kanthal but to me it tastes like metal, I can't use metal drip tips for the same reason.

I've had a couple of customers telling me the same thing. I've never really known why some people are affected this way. I personally prefer Kanthal over Nichrome though

**Bahas**

Bronze Contributor

Member For 4 Years

Jun 30, 2014

#10

Panco_Brown said: ⬆

I've had a couple of customers telling me the same thing. I've never really known why some people are affected this way. I personally prefer Kanthal over Nichrome though

Some people have a metal allergy even if it is slight and don't realize it and it can come across in the usage of the wire they use as the heating element and causes an off putting taste for them.

Pancho_Brown

**Pancho_Brown**

Silver Contributor

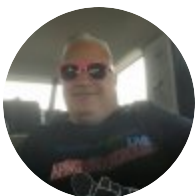
Member For 4 Years

Member For 3 Years

Jun 30, 2014

#11

@Bahas Good to know man. I'm glad i have some sort of explanation when people ask me now. Thanks

**SMOKIE**

Jun 30, 2014

#12

COPIED THIS POST ABOUT "GPLAT" WARNING!

Taken from CCI
Chance Karl TravisCloud Chasers Inc.



THE MODFATHER

Staff member

VU Senior
LeadershipVU Senior
Administrator

Senior Moderator

VU Donator

Platinum Contributor

VU Live Leadership

Show Host

Reviewer

Vape Media

VU Live Host

Member For 5 Years

29 mins · Bellingham, WA, United States ·

VAPING HEALTH ALERT!!! it has been brought to the attention of the vaping community that "GPLAT" resistance wire contains Manganese. Manganese is a toxic element when heated. The fumes when heated and inhaled are linked to impaired motor skills, cognitive disorders and Parkinson Disease, most commonly found in welders. If you are using GPLAT wire for vaping you are in direct risk of seriously damaging your body. RIP THAT SHIT OUT OF YOUR SETUP NOW!!! Vaping is a healthy hobby we don't want any shit in our vape.

"Manganese compounds are less toxic than those of other widespread metals, such as nickel and copper.[47] However, exposure to manganese dusts and fumes should not exceed the ceiling value of 5 mg/m3 even for short periods because of its toxicity level.[48] Manganese poisoning has been linked to impaired motor skills and cognitive disorders.[49]"

CashNVape, PT Rampy, kathibg57 and 1 other person



**Jonothon
Forsgren**

Member For 4 Years

Member For 3 Years

Member For 2 Years

Member For 1 Year

Member For 5 Years

Aug 28, 2014

#13

SMOKIE said: ⬆

COPIED THIS POST ABOUT "GPLAT" WARNING!

Taken from CCI

Chance Karl TravisCloud Chasers Inc.

29 mins · Bellingham, WA, United States ·

Click to expand...

Kinda says it all for me.



Bahas

Bronze Contributor

Member For 4 Years

Aug 28, 2014

#14

Posted on Facebook by **@VapingwithTwisted420**
http://www.reddit.com/r/electronic_...ad_a_metallurgist_in_a_top_defence_contactor/

So here is a metallurgist test on the gplat. Am I sure this is the real test..... no.... can't say for sure not a metallurgist. So take with a grain of salt and choose for yourself. For me I'll stick with kanthal .

Last edited: Aug 28, 2014



GargoyleK1

Aug 28, 2014

#15

Why reinvent the Kanthal wheel? LOL!!



Bronze Contributor

Member For 4 Years

Member For 3 Years

Member For 2 Years

Member For 1 Year

Member For 5 Years

**UncleRJ**Will write reviews for
Beer!

Staff member

Senior Moderator

VU Donator

Platinum Contributor

Member For 4 Years

ECF Refugee

Reviewer

Moderator

Aug 28, 2014

#16

Me, I like my Kanthal A-1.

For three reasons.

Works great.

Inexpensive

Own a big assed spool of it already!

CashNVape, VegasVape and chickenmonkey

**bbybee**

Bronze Contributor

Member For 4 Years

Member For 3 Years

Member For 2 Years

Member For 1 Year

Member For 5 Years

Aug 28, 2014

#17

UncleRJ said: ↑

Me, I like my Kanthal A-1.

For three reasons.

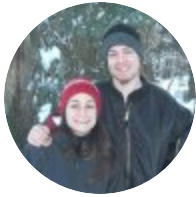
Works great.

Click to expand...

Does that big ass on your spool make it roll out funny. Can it hold more? Is the big ass the reason you got it so cheap?

Enpsyclopedia



**Johnny2Much**

Member For 4 Years

Member For 3 Years

Member For 2 Years

Member For 1 Year

Jun 25, 2015

🔗 #18

ive been building with kanthal for a little while now, and i recently bought a bunch of nichrome and i'm noticing that my nichrome builds are all super low, like .05, .09 ect and the same builds with a-1 kanthal ramp in at about .3 or .5. why is that? i just started mixing the two and am getting great flavor and could results. i still struggling with some of the basic concepts.....

C

Clinton Mullins

Jun 28, 2015

🔗 #19

exodus said: ⬆

even tho the wire is the same gauge the resistance is not . a 3inch piece of 32ga nichrome has the same resistance as 30 kanthal

the lower the gauge the bigger the difference gets

i went back to nichrome after noticing some rust like build up on my kanthal that i don't get with nichrome 60 or 80 series wire

One thing that you may want to consider for future reference if you ever move to temperature control devices that are currently available and seem to be all the rage. That is they are designed to work effectively nickel200 and titanium wire but do not work with nichrome80 in TC mode. I learned this the hardway with my new TC mod not working with nichrome. Nichrome is fine for use on non-temp control devices of course. Just thought i would pass this on.

Eemeli

**gbalkam**

Gold Contributor

Member For 4 Years

ECF Refugee

Reddit Exile

Sep 22, 2016

🔗 #20

First of all... G-plat.. is simply 317L stainless steel wire. There is not much of a difference in any of the stainless steel wires, they do not perform as well if super heated, but should cause your juice to vaporize nicely with good crisp flavor. Stainless steel does have a fairly low resistance though, so 20ga stainless, dual coil is about 12 wraps per coil to hit around 0.15 ohm. (this is just from memory of a coil I built, so check steam-engine when building yours for exact calculations)

Kanthal.. is cheap. It is the poor boys wire.. kind of like training wheels.. you learn to build on kanthal. It gives good flavor, but not really great.

Stainless steel.. harder to work with than kanthal, but since you need more wraps per ohm, you get bigger clouds and a crisper, sharper flavor. I believe i heard it was the mid to high flavor note range.

NiCrome is kind of a cross between SS and Kanthal. More wraps per ohm than

kanthal but less than SS. Again, low to midrange flavor notes.

Something myself and SirRichardRear have been looking into and working on is twisted wires. This is still being looked into for a proper working formula, however, you can keep up via this thread <http://vapingunderground.com/threads/mixing-wire-types.274665/#post-1374491> This is just to look at, some of the math theory isn't working out as expected, hence a work in progress. If you are a math nerd or wire wizard, feel free to jump in and help.

To maintain a uniform measurement, wires are twisted until they break off on a power drill, the way TwistedMesses does his. This means that the twists will be as dense as possible and should be uniform from one user to the next using the same method.

K**kintatsu**

Apr 15, 2017

🔗 #21

gbalkam said: ⚠️

Kanthal.. is cheap. It is the poor boys wire.. kind of like training wheels.. you learn to build on kanthal.

Sorry, but that's not always the case. I'm allergic to nickel, SS316 has 10-15% nickel. Nickel happens to be very common on the metal allergies list. Titanium seems to be a good choice for those who have allergies and want TC mode. Given that I have allergies to nickel and have no current interest in TC mode, Kanthal just seems a good choice.

I hope I'm not being out of line. I'm not trying to argue or ruffle any feathers.

Happy Easter everyone!



**gbalkam**

Gold Contributor

Member For 4 Years

ECF Refugee

Reddit Exile

Apr 15, 2017

🔗 #22

kintatsu said: ⬆

Sorry, but that's not always the case. I'm allergic to nickel, SS316 has 10-15% nickel. Nickel happens to be very common on the metal allergies list. Titanium seems to be a good choice for those who have allergies and want TC mode. Given that I have allergies to nickel and have no current interest in TC mode, Kanthal just seems a good choice.

I hope I'm not being out of line. I'm not trying to argue or ruffle any feathers.

Happy Easter everyone!

Sorry, but that is always the case. Your allergies do not change the properties of the various types of wire, they only limit the types of wire you can use.

kintatsu

K**kintatsu**

Apr 15, 2017

🔗 #23

I'm sorry if I didn't clearly state what I meant. I just meant that Kanthal isn't always for "poor boys" only. But you're right about the training wheels part, as it's easy to learn on. I apologize again, and wish you a great weekend!

By the way, your stuff on twisting wire is very interesting, as I have just started looking into doing some of that. I've done a 2 twisted wires twisted with 2 identically twisted wires. All 4 were 24 gauge. It came in on my mod at .26 ohms, although it read slightly higher on my Fluke.

Last edited: Apr 15, 2017

**gbalkam**

Gold Contributor

Member For 4 Years

ECF Refugee

Reddit Exile

Apr 16, 2017

🔗 #24

kintatsu said: ⬆

I'm sorry if I didn't clearly state what I meant. I just meant that Kanthal isn't always for "poor boys" only. But you're right about the training wheels part, as it's easy to learn on. I apologize again, and wish you a great weekend!

By the way, your stuff on twisting wire is very interesting, as I have just started looking into doing some of that. I've done a 2 twisted wires twisted with 2 identically twisted wires. All 4 were 24 gauge. It came in on my mod at .26 ohms, although it read slightly higher on my Fluke.

Yeah, you divide the initial resistance by the number of wires.. Well aprox, depending on how tightly you twist them. steam-engine.org has a good tool for that.

The poor boys reference was only noting that kanthal is the least expensive. I think it is about 2/3 the cost of NiCr for a 250 foot spool.. if i remember right. (how sad is it ⬆)

that I buy my wire by the 250 foot spool?) Not as sad as my next order being for a 100 foot spool I suppose. LOL. (32 ga SS for wrapping) lol.

kintatsu

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