

[14:08] <gemma> ☺don't laugh at this question please. quartz is a silicate, right?

[14:09] <gemma> ☺opps i can wait on the answer

[14:09] <Doos> the job she has

[14:09] <Doos> yah gemma

[14:09] <gemma> ☺ok

[14:09] <gemma> ☺now

[14:09] <gemma> ☺and garnet is a silicate?

[14:10] <Doos> didn't we discuss that?

[14:10] <gemma> ☺i'm just laying groundwork for my question

[14:10] <Catrix> I love gemmas questions!

[14:10] <gemma> ☺not this onw

[14:11] <Doos> oh dear

[14:11] <gemma> ☺yeah it'll prbably make frank proud

[14:11] <Doos> does anyone have questions from the previous chats?

[14:11] <gemma> ☺oh bummer. i'll not ask it. lol

[14:11] <africanuck> go and ask it gemma

[14:11] <Doos> go ahead gemma

[14:12] <gemma> ☺ok.

[14:12] <gemma> ☺i'm just looking for a brief answer on this

[14:12] <gemma> ☺if quartz and garnet are both silicates, what makes one quartz and the other garnet?

[14:13] <Catrix> that is a great question..

[14:13] <Doos> quartz is more silica, the more pure form of a silicate

[14:13] <Doos> a silicate has silica in it's composition

[14:13] <Doos> or silicon rather

[14:14] <gemma> ☺so it has to do with the molecular type of silica silicon etc?

[14:15] <gemma> ☺i guess is should have said bonding

[14:15] <Doos> you have to look at the whole chemical formula .. garnet has a $(SiO_4)_3$ in it .. so part of it is silica .. hence it falls under the silicates group

[14:16] <Doos> strictly speaking opal falls under silica aswell, like quartz as it has the same formula, but water added

[14:16] <gemma> ☺that one i understand, sort of

[14:17] <gemma> ☺so then it falls back on being at that particular place at that particular time with that particular temp and pressure and trace elements kind of things

[14:17] <Doos> yes

[14:17] <gemma> ☺good enough. i just like to pigeon hole as much as i can to keep my mind straight.

[14:17] <gemma> ☺thanks. ok.i'm off for a bit again.

[14:17] <Doos> but quartz is not a silicate

[14:17] <Doos> ok

[14:17] <Catrix> so what is a dioxide?

[14:18] <gemma> ☺no i want to her our answer

[14:18] <gemma> ☺hear

[14:18] <gemma> ☺your god im tired

[14:18] <Doos> quartz is Silicon dioxide, so an oxide

[14:18] <gemma> ☺SiO₂?

[14:18] <Doos> yes, SiO₂

[14:19] <gemma> ☺ok. back to auditing.

[14:19] <Doos> heh

[14:19] <Doos> before I start I want to clear up something

[14:19] <africanuck> ok

[14:20] <Doos> we introduced n for RI
[14:20] <Doos> which is strictly speaking not correct
[14:20] <africanuck> you have lost me, "n"?
[14:20] <Doos> n stands for index of refraction and not RI which stands for refractive index
[14:20] <africanuck> ah, ok
[14:21] <Doos> n is the scientific notation
[14:21] <africanuck> ok
[14:21] <Doos> what I really should have said was nD
[14:21] <Doos> instead of just n
[14:21] <africanuck> and the D means?
[14:22] <Doos> D is the Fraunhofer notation for sodium
[14:22] <Doos> the light we use for a refractometer
[14:22] <Catrix> ok lost me totally.
[14:22] <gemma> why use nD and not RI?
[14:22] <Doos> it has a specific wavelength
[14:22] <gemma> because the RI is general and nD refers to sodium light?
[14:23] <Doos> no RI and nD are the same, n alone is not RI
[14:23] <gemma> then why use nD and not RI?
[14:23] <Doos> official notation
[14:24] <Doos> and you should be familiar with it
[14:24] <gemma> I have seen it and knew it was RI because of the column etc but wondered why it was used.
[14:24] <Doos> remember Frank explaining dispersion?
[14:24] <Catrix> yes
[14:24] <gemma> no. I don't think I read it nor was here and if I was then I don't remember.
[14:25] <africanuck> ok, this will be a stupid question, but n is the index of refraction under which conditions? what type of light?
[14:25] <Doos> that is measured using red light and blue light
[14:25] <africanuck> thx
[14:25] <Doos> whitelight africanuck
[14:25] <africanuck> ok
[14:25] <gemma> dispersion is measured under red and blue light?
[14:25] <gemma> to cover all extremes?
[14:26] <Doos> the red and blue light difference is commonly known as the difference between the B and G Fraunhofer interval
[14:26] <gemma> ok. I think I understand why the letters
[14:26] <Doos> so red light is notated as nB and blue as nG
[14:26] <gemma> and nD is yellow?
[14:26] <gemma> ish
[14:26] <Doos> those are spectra that Fraunhofer discovered
[14:26] <Doos> yes gemma
[14:27] <gemma> ok. so RI is gemology and nD is mineralogy?
[14:27] <Doos> so if you say just n, that means you are working with white light
[14:27] <Doos> yes
[14:27] <gemma> :)
[14:27] <Doos> I think
[14:27] <Doos> lol
[14:27] <gemma> lol
[14:27] <gemma> makes sense to me
[14:27] <Doos> did I lose anyone in the process?
[14:27] <gemma> ok. NOW I'm back to auditing.
[14:28] <Doos> let me get some tea

[14:28] <Catrix> why is red light nB the B stands for what "word" ... ok tea break..

[14:29] <Catrix> I need a color..

[14:29] <Catrix> ☐05test

[14:29] <Doos> Fraunhofer studied the spectra of the universe and discovered certain elements producing different bands, so he started naming them G B D etc .. dunno why but we can't ask him anymore

[14:30] <Catrix> ☐05ahhh ,, ok.. rip Fraunhofer

[14:30] <africanuck> basically as I understand what you just explained, nB is the refractive index of a stone using red light, nG is the refractive index of a stone using blue light and nD is the refractive index using a sodium light and n is the refractive index of a stone using white light, although the "official" RI = nD

[14:30] <Doos> correct

[14:30] <africanuck> cool

[14:31] <Catrix> ☐05WOW clapping for Africanuk

[14:31] <africanuck> woohoo

[14:31] <Doos> heh

[14:31] <Catrix> ☐05giggle!

[14:31] <africanuck> you don't have to memorize them all do you?

[14:32] <Doos> well you may need to know the wavelengths of these 3 for you FGA

[14:33] <Doos> want me to drum them up?

[14:33] <africanuck> so, say that you have two stones with the same RI (nD), but are not the same type of stone (or one is synthetic, the other not). Would they have the same nB, nG and n as well?

[14:34] <africanuck> I will likely have them in my course notes if they are needed

[14:34] <gemma> ☐03aren't the letter simply standing for the spectra colors from purple to violet, so red would be B?

[14:34] <Doos> B = 759.3 , D = 589.5 and G = 403.7

[14:34] <africanuck> thanks

[14:35] <Doos> well B actually stands for the Oxygen line he saw, which corresponds to that wavelength

[14:35] <Doos> D = sodium and G = iron

[14:35] <gemma> ☐03but falls in the red zone?

[14:35] <Doos> yes

[14:35] <gemma> ☐03the reason i saw D as yellow as it fell in that letter sequence.

[14:35] <gemma> ☐03perhaps just a coincidence

[14:36] <Doos> really, are you seeing an aura in the letter?

[14:36] <gemma> ☐03yes.

[14:36] <gemma> ☐03when i can see beyond the bright white of my own :)

[14:36] <Catrix> ☐05 what would purple be Gemma? that is the first color of the spectra correct?

[14:37] <gemma> ☐03if my idea is correct it would be A. does that fit doos?

[14:37] <Doos> yes

[14:37] <gemma> ☐03then maybe there is a correlation. just curious.

[14:37] <africanuck> is there a way to use these different types of "n"'s to separate a sythetic from a natural?

[14:38] <gemma> ☐03but this underscores so much why we need to be mentally familiar with the wavelenght numbers

[14:38] <Doos> there are many sub qualifications aswell .. he got carried away a little

[14:38] <Catrix> ☐05so A=purple light and would be nA?

[14:38] <gemma> ☐03he was a mineralogist. it's a disease.

[14:38] <gemma> I believe so cat, yes
[14:38] <Catrix> interesting
[14:38] <Doos> uh no Catrix, the visual spectrum starts with red
[14:38] <gemma> but purple comes before red
[14:39] <africanuck> well if there was one
[14:39] <gemma> yeah
[14:39] <Doos> red orange yellow green blue indigo violet
[14:39] <Doos> those are the 7 colours
[14:39] <africanuck> thanks, that was my next question
[14:39] <Doos> I think you are looking at the colourwheel
[14:40] <gemma> but spectra illustrations show a purple
[14:40] <Catrix> but a spectra strip has purple in front of red doesn;t it?
[14:40] <gemma> mm, i see it in spectra explanations too.
[14:40] <gemma> yes, cat that is what i am talking about
[14:40] <Doos> not in my spectroscope
[14:40] <gemma> no, but on spectra explanations, there is purple
[14:40] <Doos> new to me, maybe I should go and read
[14:41] <Catrix> so it is not Visible light?
[14:41] <Doos> yes but it's a mixture
[14:41] <gemma> which is because i think it has to do with UV or infrared i
forget the end which is which
[14:41] <Doos> the colourwheel that is used for colour discriptions is round
[14:41] <Catrix> hmmm...
[14:41] <gemma> isn't it because the purple are so very long waves?
[14:42] <gemma> or do they not really exist?
[14:42] <Doos> purple is between red and blue .. correct?
[14:42] <africanuck> yes
[14:42] <africanuck> it should be
[14:42] <Catrix> on a colorwheel I think so..
[14:42] <gemma> but doesn't uv tend to show blues in fluorescence?
[14:42] <gemma> or combos of blues?
[14:43] <gemma> oh, i guess some reds
[14:43] <Doos> so if you would glue the ends of a spectroscope image together ..
you are creating a colourwheel and purple will be on the spot where the glue is
[14:43] <gemma> i'm way off on that one.
[14:43] <gemma> so is the concept of purple bs or what?
[14:43] <Doos> is there a concept of purple that I'm unaware of?
[14:44] <Catrix> lol
[14:44] <gemma> perhaps fraunhofer (sp?) used the colorwheel example and
started purple as A even though it doesn't exist.
[14:44] <Doos> where did you all read that
[14:44] <gemma> where did i read what?
[14:44] <Doos> yah, or Catrix
[14:44] <gemma> but read what? what are you referring to?
[14:44] <africanuck> she came up with it herself, not read it, i think
[14:44] <Doos> that the spectrum starts with purple
[14:44] <Catrix> about the spectra strip?
[14:45] <africanuck> ah, no then
[14:45] <gemma> it's on illustrations teaching the spectroscope spectrum
[14:45] <Catrix> nod
[14:45] <gemma> (whew. thanks cat)
[14:45] <Doos> where, I need to read that
[14:46] <gemma> cat you know off hand? i am thinking of stuff i've been
working with that i can't publish yet. ISG cross my heart and hope to die.
[14:46] <Catrix> ok hang on,,, let me check something

[14:46] <Doos> ok
[14:46] <africanuck> can i ask my question again now?
[14:47] <Doos> no
[14:47] <gemma> ☐03no.
[14:47] <gemma> ☐03lol
[14:47] <Doos> lol
[14:47] <africanuck> while we are waiting
[14:47] <Doos> ok boss, now you may
[14:47] <africanuck> please
[14:47] <africanuck> is there a way to use these different types of "n"'s to separate a sythetic from a natural?
[14:47] <gemma> ☐03good question.
[14:47] <Doos> uhm
[14:47] <africanuck> tough question, i think
[14:48] <gemma> ☐03ok. got an example here doos
[14:48] <Doos> I was thinking of natural fluorescence in ruby, but i guess that is the same for nat and synth
[14:48] <gemma> ☐03look about three scrolls down on this page
<http://www.yourgemologist.com/Spectroscope/spectroscope.html>
[14:48] <Doos> so I really don't know
[14:48] <Doos> ok, holdon
[14:48] <gemma> ☐03i have seen this in books etc too
[14:49] <Catrix> ☐05I just looked in the Schuman book and the spectra strips don;t have the purple in them.
[14:49] <Doos> that's completely new to me
[14:49] <gemma> ☐03well don't let RJ know that LOL
[14:49] <Catrix> ☐05 BUT it is shown that way in the ISG course text!
[14:49] <Doos> heh, maybe he should answer that one
[14:50] <Catrix> ☐05I ain't asking
[14:50] <africanuck> one for the isg forum
[14:50] <gemma> ☐03and i have seen it elsewhere.
[14:50] <Doos> maybe he's right, I really have no clue
[14:50] <gemma> ☐03i can cat. that's my job. and i have a bullet proof vest.
[14:50] <Catrix> ☐05HUG!!!! GEMMA
[14:50] <africanuck> lol
[14:50] <gemma> ☐03this is an interesting topic doos.
[14:50] <Doos> bullet proofreading vest?
[14:50] <africanuck> hehe
[14:50] <gemma> ☐03yup. a perk.
[14:51] <gemma> ☐03ok. i have proof now that i am right
[14:51] <Doos> when you found the other source, let me know please gemma
[14:51] <gemma> ☐03about the UV purple thing
[14:51] <gemma> ☐03here it is <http://imagers.gsfc.nasa.gov/ems/visible.html>
[14:51] <Doos> ok, let me see
[14:51] <gemma> ☐03good old nasa
[14:52] <Catrix> ☐05rats I can't go there,,,
[14:52] <Doos> but that shows purple at the other end of red
[14:52] <gemma> ☐03look at the rainbow below
[14:53] <Doos> where is the purple near the red then?
[14:53] <gemma> ☐03and yes the purple is at the end for the red
[14:53] <Doos> hey I'm a guy, I'm colourblind
[14:53] <gemma> ☐03i'm seeing it.
[14:54] <gemma> ☐03in a sense doos that is true
[14:54] <Doos> lol
[14:54] <gemma> ☐03we do tend to see colors better. scientific fact.

[14:54] <Catrix> nod
[14:54] <Catrix> and smell things better also..
[14:54] <Doos> I pick my nose frequently, so nothing blocking that
[14:54] <africanuck> try putting a piece of crystal in your window and looking at the spectral colours on your floor
[14:54] <gemma> unfortunately, yes
[14:55] <Doos> would that show purple next to red?
[14:55] <africanuck> it probably would, a rainbow is the same thing with water droplets as the prism
[14:56] <Doos> I understand that
[14:56] <africanuck> so if a rainbow shows purple before red (i see it too) then a prism would too
[14:56] <Doos> nice thing for the forum .. see what the guys see and what the gals see
[14:56] <africanuck> maybe stronger and easier to see
[14:56] <gemma> yeah, that would be a fun question doos.
[14:57] <Catrix> ok maybe because purple is so dark that any absorption line would not show up anyway?
[14:57] <Doos> I wonder what Wise will see
[14:57] <Doos> I'm totally in the dark on that one Catrix
[14:58] <Doos> this is all new to me
[14:58] <gemma> that's why you can't see the purple doos
[14:58] <gemma> you need light.
[14:58] <Doos> heh
[14:58] <africanuck> good one
[14:58] <gemma> ok well i screwed up this chat enough. i'll go back to auditing for awhile
[14:58] <gemma> (frank bro, you would be proud!)
[14:59] <Doos> lol
[15:00] <africanuck> trying to figure out an answer to my earlier question, what are the main things that affect the refractive index. Crystal structure or the elements contained in the stone?
[15:00] <Doos> nice topic though, we can leave the quartz for next week
[15:00] <Doos> optical density really
[15:00] <africanuck> which is the result of what?
[15:01] <Doos> I think it relates to the structure, how exactly i don't know
[15:02] <Doos> more a question for a mineralogist, I think you have one running around there
[15:02] <africanuck> hang on a sec, going to pull up a chart of RI's
[15:02] <gemma> i am thinking it is structure to doos.
[15:03] <gemma> since it relates to axis, doesn't it?
[15:03] <gemma> i mean, everything about light and gemstones relates to the axis doesn't it?
[15:04] <gemma> but then that goes back to the composition.
[15:04] <Doos> well in that logic all uniaxial gems should have the same RI
[15:04] <gemma> yah, so it must have to do with elements
[15:04] <gemma> good deduction doos
[15:05] <gemma> and the elements make the structure really
[15:05] <Doos> yah the way the atoms are packed/compressed or so
[15:05] <gemma> so its the elements
[15:05] <Catrix> the more "stuff" the higher the RI?
[15:05] <Doos> I would think so yes
[15:05] <gemma> the more of a certain element, yeah.
[15:06] <gemma> (where is frank?!?!?)
[15:06] <gemma> lol

[15:06] <Catrix> ☺grin
[15:06] <Doos> or annie
[15:06] <gemma> ☺i think africanuck fell into one of those big street holes
[15:06] <gemma> ☺yeah or annie
[15:06] <Catrix> ☺yeah
[15:06] <gemma> ☺gees. she's so cool.
[15:06] <africanuck> ok, so the RI of a synthetic emerald is slightly less than beryl
[15:06] <africanuck> no looking
[15:06] <Doos> yah
[15:06] <gemma> ☺because of the less this or that
[15:07] <africanuck> right
[15:07] <gemma> ☺k. we have the answer then i think don't we doos?
[15:07] <Doos> some isomorhous replacement of chromium I believe
[15:07] <africanuck> no, am typing
[15:07] <africanuck> lol
[15:07] <gemma> ☺yes, which always affects the ri
[15:07] <gemma> ☺sorry africanuck
[15:07] <gemma> ☺i took the ball and ran with it and forgot the team
[15:08] <Catrix> ☺then why is the RI of Synth Spinel slightly higher... man I swish I could type faster,,
[15:08] <gemma> ☺you swish
[15:08] <Catrix> ☺lol
[15:08] <gemma> ☺that's interesting
[15:08] <Catrix> ☺when I walk I do
[15:08] <africanuck> red spinel or all of it
[15:08] <Catrix> ☺ummm I don;t know.. I think all
[15:09] <gemma> ☺perhaps what the coloring agent of the spinel needs more to bond in the structure to create the color than would another gemstone
[15:09] <gemma> ☺i can't put it better than that.
[15:09] <gemma> ☺but do you know what i mean.
[15:09] <gemma> ☺does that make sense doos?
[15:10] <Doos> i read that somewhere .. it was either an impurity in the synth. that they can't remove or the lack of it
[15:10] <Catrix> ☺ok...
[15:10] <gemma> ☺ok. density then. i vote for density of elements
[15:10] <africanuck> ok, back to the synth emerald
[15:10] <Catrix> ☺ok
[15:10] <Doos> what were you waiting for africanuck
[15:10] <africanuck> lost track of the question, lol
[15:11] <gemma> ☺about syn being ligher than natural?
[15:11] <africanuck> would more chromium and less of other elements be more visible in different lightwave lengths
[15:11] <africanuck> than in nD
[15:11] <gemma> ☺oh great question!
[15:12] <gemma> ☺and i'll shut up because i have to audit again for a while (much to everyone's relief)
[15:12] <Doos> never tried that
[15:12] <Catrix> ☺you mean UV? or just other types of light?
[15:12] <africanuck> I mean red, blue and white
[15:12] <africanuck> what we were talking about earlier
[15:13] <Catrix> ☺hmm
[15:13] <Doos> you will get different values ofcourse, but I don't know if you could spot a certain element with that .. i doubt it

[15:14] <africanuck> ok, what I am trying to get at it, you have a stone on the refractometer, with a Sodium light...and you're not sure because it's close to the natural RI

[15:14] <Doos> yes

[15:14] <africanuck> so you change the light to a red light and it's a much bigger difference between synthetic and natural

[15:14] <africanuck> or to white or to blue

[15:15] <Doos> uhm

[15:15] <Doos> then you would have to test all the naturals and the synthetics so you can compare

[15:16] <africanuck> doesn't that mineralogist guy have a table of n_B, n_G etc for the different stones?

[15:16] <Doos> but i doubt it would work

[15:16] <Doos> no

[15:16] <africanuck> silly bugger

[15:16] <africanuck> lol

[15:16] <Catrix> lol

[15:16] <Doos> Fraunhofer was not into gemmology I think

[15:17] <Doos> we just stole the idea for our own purposes

[15:17] <africanuck> do you have a red light or a blue light at home?

[15:17] <Doos> no, I need to get my hands on some filters

[15:18] <africanuck> because if that worked, then we could bring out the next generation gemeter and kick ass, lol

[15:18] <gemma> what kind of filters do you need doos. just the plastic ones

[15:18] <gemma> little square colors or something special

[15:19] <Doos> anything that only permits the B or G colours to pass through

[15:19] <Doos> maybe selenium glass or some fancy plastic

[15:19] <Catrix> I have been looking for my gift wrap to test the cellophane red and blue

[15:19] <gemma> well, i have a set of colored plastic filters that i don't even know what they are for.

[15:19] <gemma> would that work.

[15:19] <Doos> give it a try

[15:19] <gemma> i don't have time.

[15:20] <africanuck> so long as it doesn't melt on your light

[15:20] <Doos> lol, send them over

[15:20] <gemma> you want me to send to them to any of you guys?

[15:20] <gemma> ok. email me your address and it will

[15:20] <gemma> i will

[15:20] <gemma> if they aren't useful oh well

[15:20] <gemma> worth a try

[15:20] <Doos> heh, are they hanneman filters?

[15:20] <gemma> i got them with a bunch of he who must not be named stuff i bought on ebay

[15:20] <gemma> heh

[15:21] <africanuck> hehe

[15:21] <Doos> we could ask anatase to test, she has the filters aswell I believe

[15:21] <africanuck> voldemort sells on ebay?

[15:21] <Catrix> lol

[15:21] <gemma> sorry robert, just joking. we understand.

[15:21] <gemma> ok. let's ask anatase first, then i'll take a pix of them and let you see what they are doos.

[15:21] <gemma> you can decide from that

[15:21] <Doos> ok

[15:21] <gemma> ☺deal.
[15:21] <gemma> ☺☺:)
[15:21] <Doos> :)
[15:22] <gemma> ☺back to auditing
[15:22] <africanuck> you keep saying that
[15:22] <africanuck> lol
[15:22] <Catrix> ☺giggle
[15:22] <gemma> ☺i'm hopeless. i have missed three of these in a row
[15:22] <africanuck> i've missed more than that
[15:22] <gemma> ☺i love science~!!!!
[15:22] <Catrix> ☺her mind is amazing
[15:23] <africanuck> we can tell that you love it
[15:23] <Doos> I think you all did well today making me look like a newbie :)
[15:23] <gemma> ☺must to doos dismay lol
[15:23] <gemma> ☺but you are cute doos.
[15:23] <Doos> heh
[15:23] <gemma> ☺ok NOW i'm gone
[15:23] <africanuck> lol
[15:23] <africanuck> sure u r
[15:23] <Catrix> ☺snicker
[15:24] <Catrix> ☺I am going to have to take off.
[15:24] <Doos> so, that concludes the "before I begin with quartz"
[15:24] <africanuck> out of curiosity, do they have any tests for gemstones that use sound instead of light?
[15:25] <Doos> bye Catrix, nice session
[15:25] <africanuck> or is that too dangerous for the stones
[15:25] <africanuck> bye catrix :)
[15:25] <Doos> uhm none that I know of africanuck
[15:25] <Catrix> ☺Later Gemma, Africanuk Doos :)
[15:25] <africanuck> see ya
[15:25] <Catrix> ☺HUGS to all
[15:25] Catrix (~Catrix@172.198.124.188) left irc: Catrix
[15:25] <africanuck> (x)
[15:25] <africanuck> too late, oops
[15:26] <Doos> most advanced techniques use x-ray etc
[15:26] <africanuck> sorry, mind is going a mile a minute today
[15:26] <Doos> I see that
[15:27] <africanuck> i end up off in some pretty out of the box areas
[15:27] <Doos> keep up the imagination and you might come up with a great application one day