

[14:11] <Doos> so shall we start?  
[14:11] <TNPearl\_\_> ok  
[14:11] <Catrix> Yea,,, just joggle me if I fall asleep.  
[14:12] <Doos> last week we discussed iomorphou replacement in garnet, are there any quetions?  
[14:12] <Doos> my S is stuck  
[14:12] <Annie> last week was your n  
[14:12] <Doos> lol  
[14:12] Frank (~Frank@172.158.250.167) left irc: Read error: Connection reset by peer  
[14:12] <Annie> will put up with the s  
[14:13] Frank (~Frank@172.175.1.227) joined #yg.  
[14:13] <Doos> so everybody understood the concept?  
[14:13] <Annie> what happend with frank  
[14:13] <TNPearl\_\_> some of it  
[14:13] <Frank> AOL happened annie  
[14:14] <Annie> oh ok  
[14:14] <Doos> what is not clear pearl?  
[14:14] <gemma> the polarization chats are 15 and 16, TN  
[14:14] <TNPearl\_\_> ok gemma  
[14:15] <Annie> Pearl, did you read last week's chat  
[14:15] <TNPearl\_\_> most of it doos I will study more later ok  
[14:15] <TNPearl\_\_> yes  
[14:15] <TNPearl\_\_> very good chat  
[14:15] <Annie> what was not clear, my pearl  
[14:17] <TNPearl\_\_> I undrerstood the chemical make up better  
[14:17] <Doos> read up on it and ask next time, ok?  
[14:17] <Annie> pearl you said to doos - most of it  
[14:17] <Annie> most of it was not clear to you ?  
[14:17] <TNPearl\_\_> ok I will  
[14:18] <TNPearl\_\_> on most was  
[14:18] <Annie> it is not easy lesson, dont be afraid to put up yur hand  
[14:18] <TNPearl\_\_> pyrope and uvarovite?  
[14:18] <TNPearl\_\_> note uga?  
[14:19] <Annie> and you were not here, we understand,  
[14:19] <Doos> pyrope falls in a different group as uvarovite indeed  
[14:19] <TNPearl\_\_> what is uag  
[14:19] <Doos> uga tand for uvarovite, grossular and andradite  
[14:19] <Doos> stands\*  
[14:19] <TNPearl\_\_> oh  
[14:20] <Annie> doos, can you revise that bit fr pearl  
[14:20] <Annie> \*for  
[14:20] <Doos> yah, well do that as we go over the fist group, maybe it will become clear  
[14:20] <TNPearl\_\_> thats ok lets start an I will catch up  
[14:20] <Doos> the first group was pyralspite  
[14:21] <Doos> in that gropu are 3 garnet species that form series with one and other  
[14:21] <Doos> can you name them, anyone?  
[14:22] <Catrix> pyrope almandine spesserrtie  
[14:22] <Doos> 10 points  
[14:22] <Doos> we'll discuss those 3 today and the second group next week  
[14:22] <Annie> their your p a s  
[14:22] <TNPearl\_\_> pas?  
[14:23] <TNPearl\_\_> oh ok  
[14:23] <Annie> which importantly are the P for pyrobe  
[14:23] <Annie> a for almandine  
[14:23] <Annie> s for spessartine

[14:23] <Annie> Pearl  
[14:23] <TNPearl\_\_> ok  
[14:23] <Annie> the pyralspite  
[14:24] <Doos> pyrope is the first one and usually forms a serie with almandine  
[14:24] <Doos> as we learned last week, pyrope is a magnesium aluminium sillicate and therefor is allochromatic  
[14:25] <Doos> it gets his colour from the Iron in almandine  
[14:25] <Doos> which is a iron aluminium sillicate  
[14:25] <Doos> iron is a colouring element, remember?  
[14:26] <Doos> there is also some chromium in pyrope  
[14:26] <Doos> as an impurity  
[14:26] <Doos> pure pyrope however is never found in nature (atleast not to my knowledge)  
[14:27] <Doos> the n is about 1.70 when pure, but starts at 1.730 in nature  
[14:28] <Doos> as some of the magnesium is replaced by the iron (in almandine) that value increases  
[14:28] <Doos> till it reaches about 1.750  
[14:29] <Doos> at that point it will no longer be pyrope, but a pyrope-almandine  
[14:29] <Catrix> question  
[14:29] <Doos> go ahead  
[14:30] <Catrix> in the isg flashcards the n or ri? is lited as 1.75  
[14:30] <Catrix> \*listed  
[14:30] <Doos> it ranges from 1.730 to 1.750  
[14:30] <Catrix> sorry my hands are stiff this morning so I am typing slow,,,  
[14:30] <Doos> but that is very arbitrary  
[14:31] <Catrix> so the 1.75 as lites is like the cut off point..  
[14:31] <Frank> the gem a lists it as 1,74-1.76....it's that ole moving constant range thingy Cat  
[14:31] <Catrix> \*listed  
[14:31] <Doos> don't hang me on these values, because the borders are not clearly defined  
[14:31] <Frank> 1.75 can be called a rhodolite Cat  
[14:32] <Catrix> Ok so If I would find one lower then that it would still be pyrope  
[14:32] <Frank> till about 1.78  
[14:32] <Catrix> then is almandine  
[14:32] <Catrix> ?  
[14:32] <Doos> yah  
[14:32] <Catrix> ok... sorry,,  
[14:32] <Doos> so draw a timeline  
[14:32] <Annie> yes, but take into account, that RI is not a reliable factor  
[14:32] <Annie> as there are variables depending on variety  
[14:33] <Doos> first vertical bar you write "pyrope 1.730" and the end bar write "almandine 1.830"  
[14:33] <Annie> and which ever molucele is present it tends to increase or decreases the values  
[14:33] <Annie> almandines can be as high as 1.8 or over the scale  
[14:33] <Catrix> I see. nod  
[14:34] <Annie> more so, it can also overlap the readings  
[14:34] <Annie> thats why we talked about 80/20 rule last week  
[14:34] <Catrix> ok so... is learning the RI on the flashcards for pyrope at 1.75 ok? or should it be lower?  
[14:35] <Annie> to which ever end memeber it leans towards

[14:35] <Annie> no that starting point  
[14:35] <Doos> I would put it somewhat lower cat, I would put 1.730-1.750  
[14:35] <Annie> it 1.730 or above  
[14:35] <Cattrix> ok... thanks  
[14:36] <Doos> so (generally speaking) we have 1.730-1.750 for pyrope  
[14:36] <Doos> 1.750-1.780 for pyrope-almandine  
[14:36] <Doos> and 1.780-1.830 for almandine  
[14:36] <Doos> but again, that is arbitrary  
[14:37] <Doos> same goes for the density  
[14:37] <Cattrix> 3.70  
[14:37] <Doos> yah about  
[14:38] <Doos> 3.65-3.80 for pyrope  
[14:38] <Annie> pyrope usually a range of 3.65-3.87  
[14:38] <Doos> yah  
[14:38] <Annie> almandine range of 3.95-4.30  
[14:38] <Doos> in between 3.80-3.95 for the pyrope-almandine  
[14:39] <Doos> draw these values on a timeline for a better visual  
[14:39] <Doos> are you following us pearl?  
[14:39] <TNPearl\_\_> yes  
[14:39] <TNPearl\_\_> writing it all down  
[14:40] <Doos> so what happens is that the magnesium in pyrope get  
replace by iron and that drive up the values  
[14:41] <Doos> in the pyrope-almandine range lays rhodolite with an  
approximate  $n=1.760$   
[14:41] <Annie> and iron makes it heavier  
[14:42] <Doos> and a density of approx. 3.84  
[14:42] <TNPearl\_\_> so when Iron replace it it is known as rhodolite  
[14:42] <Doos> but not all pyrope-almandine is rhodolite  
[14:42] <Doos> uhm not quite pearl  
[14:43] <TNPearl\_\_> ok  
[14:43] <Annie> no pearl, wait on  
[14:43] <Doos> first it will form an intermediate series  
[14:43] <Doos> that we call pyrope-almandine  
[14:43] <TNPearl\_\_> ok  
[14:43] <Annie> ok, doos is explaining the rhodolite  
[14:43] <Doos> with the boundaries as said earlier  
[14:44] <Doos> then when it gets more and more iron, it will become  
almandine  
[14:44] <Doos> in that intermediate serie lies rhodolite, but not all  
pyrope-almandine is rhodolite  
[14:44] <TNPearl\_\_> ok  
[14:45] <Doos> rhodolite has a distinctive colour  
[14:45] <Annie> the combination of colour of rhodolite depends also which  
[14:45] <Doos> yah  
[14:45] <Annie> molecule of end member is more in it  
[14:45] <TNPearl\_\_> ok  
[14:46] <Annie> gosh nobody took me up on the 80/20 bit before  
[14:46] <Annie> this is what i mean  
[14:46] <Doos> the name is chosen after a rhododendron  
[14:46] <Doos> go on Annie, explain that a bit  
[14:46] <Frank> which of course come in all colours  
[14:46] <Annie> its fine, please go on  
[14:47] <Annie> we are basically saying the same thing  
[14:47] <Annie> i just don't want pearl to get confused, she was not here  
last week  
[14:47] <Doos> will give me the time to potty and get some tea Annie  
[14:48] <gemma> LOL frank don't bring that up about the many colors

[14:48] <Frank> I sort of think of it as being like those old scales with the sliding weight. The more you move along the bar the heavier it becomes and the more the RI rises

[14:48] <gemma> then TN and i will both be confused

[14:48] <Frank> I was talking of rhododendrons gemma

[14:49] <Frank> not garnets

[14:49] <TNPearl\_\_> oh ok frank

[14:49] <Doos> Annie, will you do the 80/20 bit for me

[14:49] <Frank> sorry if I confused things

[14:49] <Frank> and me

[14:49] <gemma> yes, i know. i only think of them as that pinkish purple red color

[14:49] <gemma> though i know they come in others

[14:49] <Frank> we got bright red and white as well

[14:50] <TNPearl\_\_> Annie please tell me you didnt fall asleep

[14:50] <gemma> yeah. but now i can link the rhodolite to rhododendron and never forget it. once again, the circle of nature :)

[14:50] <Frank> yes it's a good way to remember that

[14:50] <Annie> maybe the ratio of the interchange between the magnesium and iron can be more or less than 2 : 1 ratio

[14:51] <Annie> rather than 80/20 - is like if it leans towards 80% almandine and 20% it will have the values of that which it contains more

[14:52] <Annie> no Pearl, thanks, I am nearly asleep

[14:53] <Catrix> comfort Annie.

[14:53] <Annie> the colour will also be in between

[14:53] <TNPearl\_\_> ok thanks annie

[14:53] <Annie> a mixture of the two, thats why the rhodolites look always a little more purplish

[14:54] <TNPearl\_\_> oh ok:-)

[14:54] <Doos> yes it's the reddish/violet/purple rhododendron flower that gave it its name

[14:55] <TNPearl\_\_> really

[14:55] <Doos> yes. lovely colour

[14:55] <TNPearl\_\_> didn't know that

[14:55] <Doos> then you probably also didn't know that pyrope is a good indicator for diamonds

[14:56] <gemma> that's a nice fun fact. i love those.

[14:56] <gemma> yes i did!

[14:56] <Catrix> Me too!

[14:56] <gemma> i saw in on a pbs program :)

[14:56] <TNPearl\_\_> no I didn't

[14:56] <Catrix> I love fun facts

[14:56] <Doos> lol, id the show the ant-hills?

[14:56] <Doos> did

[14:56] <gemma> that's how they found the ekata pegmatite

[14:56] <Catrix> but didn't know it was an indicator for diamonds.

[14:56] <Doos> in russia?

[14:56] <gemma> no, it was frozen

[14:56] <gemma> canada

[14:57] <gemma> sorry to digress. back to mom [zipped lips]

[14:57] <Doos> they also found it that way in russia and some dessert in africa

[14:57] <Doos> the kalyhara I believe

[14:57] <Catrix> from Ants?

[14:57] <Doos> yes, termites

[14:58] <Catrix> wow that is cool...

[14:58] <Annie> the ant hills are in kalahari dessert

[14:58] <Doos> the termites brought them up to the surface when they were digging their holes  
[14:58] <Doos> thanks for the correction Annie, I had a hard time spelling that  
[14:58] Jen\_ (~Jen@66.244.234.131) joined #yg.  
[14:58] <Doos> hi jen  
[14:58] <TNPearl\_\_> hi jen  
[14:58] <Jen\_> hi  
[14:59] <Jen\_> hi everyone  
[14:59] <Annie> yes so if they find almandine, then there is a diamond mine near by  
[14:59] <Catrix> yes I have seen ant hills with little pebbles and stone ringing the entrance to their nests.  
[14:59] <Frank> hey jen  
[14:59] <Catrix> Hi JEn!  
[14:59] <Annie> Hi Jen  
[15:00] <Doos> so now you know how to distinguish pyrope and almandine based on ri and sg  
[15:01] <Doos> another feature is ofcourse the distinctive spectra  
[15:01] <TNPearl\_\_> ok  
[15:01] <Catrix> which is one I can actually see.  
[15:01] <Doos> pyrope and almandine have to different spectra, but they may overlap  
[15:02] <Doos> pyrope is mainly due to chromium/iron  
[15:03] <Doos> and almandine mainly an iron spectrum  
[15:03] <Doos> look at a lot of stones and pictures to get an image .. we cant do that here  
[15:04] <Frank> the spectra can overlap a lot too  
[15:04] <Doos> yah  
[15:05] <Doos> and then we have spessartite  
[15:05] <Doos> or also named spessertine  
[15:05] gemma (~gemma@68.72.148.185) left irc: gemma  
[15:05] <Doos> spessartine\*  
[15:05] gemma (~gemma@68.72.148.185) joined #yg.  
[15:05] <gemma> gemma  
[15:05] <gemma> crap. sorry  
[15:06] <Doos> the latter is said to be the french way of spelling  
[15:06] <Doos> spessartite is a manganese aluminium silicate  
[15:07] <Doos> it can also form series with pyrope and almandine  
[15:07] <Doos> n=1.79-1.81  
[15:08] <Doos> d=4.12-4.20  
[15:08] <Doos> it is one of the most expensive ones in this group  
[15:09] <Doos> the same rules as with pyrope-almandine apply here  
[15:09] <Annie> very distinuished colour as well  
[15:10] <Doos> does anyone remember what a famous stone is in the pyrope-spessartite series is?  
[15:10] <Catrix> famous?  
[15:10] <Frank> malay  
[15:10] <Doos> yah, malaia  
[15:11] <Annie> malaia  
[15:11] <Frank> malay or malaya?  
[15:11] <Catrix> and why is that?  
[15:11] <Doos> beautiful colour  
[15:11] <Annie> its a colour change  
[15:11] <TNPearl\_\_> why famous  
[15:11] <Catrix> ! oh I didn't know that,  
[15:12] <Annie> because it comes from a special place

[15:12] <Doos> don't take famous to literally .. not that it has a fanclub  
[15:12] <Frank> which colours  
[15:12] <TNPearl\_\_> LOL  
[15:12] <Doos> reddish orange  
[15:12] <Cattrix> I think we Americans have a very definite usage of the word famous.  
[15:13] <Annie> the colour change can be as beautiful to a pinkish colour  
[15:13] <Annie> oh you use colour shift vs colour change, Cat  
[15:13] TNPearl\_\_ (~TNPearl@12.77.162.156) left #yg.  
[15:14] <Doos> pearl need to rush out  
[15:14] TNPearl\_\_ (~TNPearl@12.77.162.156) joined #yg.  
[15:14] <TNPearl\_\_> shoot  
[15:14] <Cattrix> ummm no.. Annie  
[15:14] <Annie> hmm , what  
[15:14] <Frank> We had a big forum debate on the term colour shift  
[15:15] <Cattrix> :) color change is fine with me.  
[15:15] <Annie> i thought you use more the term colour shifting rather than colour changing  
[15:15] <Annie> that is  
[15:15] <Annie> what i meant  
[15:15] <Annie> sorry  
[15:15] <gemma> bad annie. lol  
[15:15] <Frank> so it's usage is currently being discontinued...colour change is now the official ISG term  
[15:15] <Doos> can anyone say if these garnets in the pyralspite group fluorescence?  
[15:16] <Frank> Annie didn't know  
[15:16] <Frank> Pyrope might if chromium level is high and iron low  
[15:17] <Doos> we learned that pyrope always has high contents of iron (pure pyrope is not found in nature)  
[15:17] <Doos> so, the answer will be?  
[15:17] <Frank> I guess no flueorescence then  
[15:17] <Doos> indeed  
[15:17] <Annie> no definately not  
[15:18] <Doos> anyone else will take a shot at why not?  
[15:18] <Annie> there is too much iron  
[15:18] <Annie> isn't there, anyone  
[15:18] <Doos> gemma, cat?  
[15:18] <Doos> jen?  
[15:18] <Doos> pearl?  
[15:19] <Jen\_> jen was making coffee  
[15:19] <Doos> everyone gone?  
[15:19] <Frank> iron always kills flurescence...dunno about the other elements involved  
[15:19] <Doos> indeed Frank, that's the correct answer  
[15:19] <Frank> dI dont think calcium and aluminium flueresce  
[15:20] <Doos> manganese does  
[15:20] <Doos> no calcium in this group Frank  
[15:20] <Doos> thats the uga's  
[15:20] <Frank> god I need to leARN TO SPELL FLUERESCENT  
[15:20] <Frank> sh\*t...sorry everyone  
[15:20] <Doos> fluorescence  
[15:21] <Doos> any questions so far?  
[15:21] <Frank> yeah but don't think they will flu\*\*\*\*\* either  
[15:22] <Frank> It's clear for me  
[15:22] <Doos> inclusions?  
[15:22] <gemma> yes as far as i can see in my catching up reading.

[15:22] <Frank> yes please  
[15:22] <Frank> sausage fingered today  
[15:23] <Catrix> comfort Frank  
[15:23] <Doos> pyrope is usually clean, with some crystal inclusion (rounded shaped)  
[15:24] <Doos> some needles (rutile I believe) can also be present  
[15:24] <Frank> thanks cat....Do they heat treat garnets?  
[15:24] <Doos> almandine has nice zircon with halo's and rutile needles  
[15:25] <Doos> the 70-110 degree orientation that Annie answered in the forum  
[15:25] <Annie> yes, and always in the middle when you see them  
[15:25] <Annie> and short  
[15:25] <Frank> yes...parallel to the sides of the rhombus faces  
[15:25] <Doos> they can even produce a 4ray star  
[15:25] <Frank> thanks for that annie  
[15:25] <Annie> beautiful, i like that  
[15:26] <Frank> a star with 70 / 110 angles?  
[15:26] <Catrix> Doos like Diopside?  
[15:26] <Doos> and spessartite has small liquid inclusions in a wavy pattern  
[15:26] <Annie> diopside has different angles  
[15:26] <Catrix> ok...  
[15:27] <Doos> so that ends my talky, Annie do you have things to add/correct etc?  
[15:27] <Doos> maybe some on inclusions  
[15:28] <Annie> no its fine, i think we have confused the class tonight enough torture  
[15:28] gemma (~gemma@68.72.148.185) left irc: gemma  
[15:28] <Catrix> giggle  
[15:28] <Frank> are the zircon halos caused by heat treatment in the almandines  
[15:28] gemma (~gemma@68.72.148.185) joined #yg.  
[15:28] <Annie> see gemma leaving so quickly  
[15:28] <Catrix> Not torture  
[15:28] <gemma> grr!  
[15:28] <Catrix> torture  
[15:28] <Annie> run to the door gemma  
[15:28] <Catrix> rehi  
[15:28] <Annie> lol  
[15:28] <gemma> sorry. i'm having a problem popping in and out today. apologies  
[15:28] <gemma> lol annie.  
[15:28] <Doos> Frank, zircon is metamict due to uranium .. the uranium causes the halos  
[15:28] <Annie> you just happened to leave as i said that  
[15:29] <Annie> gemma  
[15:29] <Frank> ah...thanks doos  
[15:29] <gemma> annie  
[15:29] <Frank> are these stones treated at all then?  
[15:29] <Doos> not to my knowledge .. Annie?  
[15:29] <Annie> yes gemma  
[15:30] <Annie> no frank  
[15:30] <Frank> ty  
[15:30] <gemma> ? ignore me. i thought you were trying to get my attention for something.  
[15:30] <gemma> ignore me today.  
[15:30] <Frank> girls are always saying no frank to me :(  
[15:30] <Doos> lol

[15:30] <Annie> no frank  
[15:30] <Frank> lol  
[15:31] <Annie> yes frank, we love yu  
[15:31] <Doos> okay, anyone having questions?  
[15:31] <Frank> not me  
[15:31] <Cattrix> so far me perrty good  
[15:31] <Cattrix> \*pretty  
[15:32] <Doos> so next week we can quiz you all?  
[15:32] <Cattrix> ARGH!!!!!! no  
[15:32] <Cattrix> :)  
[15:32] <Frank> be cool cat  
[15:32] <Frank> we can take it  
[15:32] <gemma> no frank  
[15:33] <Cattrix> I hope that was JOKE on Doos part.  
[15:33] gemma (~gemma@68.72.148.185) left irc: gemma  
[15:33] <Doos> so if we were to ask to explain isomorphous replacement in garnet in one sentence .. you should now be able to do that  
[15:33] gemma (~gemma@68.72.148.185) joined #yg.  
[15:33] <gemma> good grief.  
[15:34] <Cattrix> I would need time to formulate a response  
[15:34] <Frank> maybe a few sentances...were only learners  
[15:34] <Cattrix> yeah what frank said  
[15:34] <Doos> but the concept is now clear in your head?  
[15:34] <Frank> lol  
[15:34] <Cattrix> I think so.... at least the basics  
[15:34] <Frank> yes we have the concept clear....good crystal  
[15:34] <Doos> heh  
[15:35] <Doos> otherwise you should ask a lot of questions  
[15:35] <Cattrix> I think the time line thigny was great... it made it more understandable to me  
[15:35] <Doos> yah draw a few of them, for each series