



Crisobalite, a High Temperature Member of the Quartz Group

Don Shurtz, Pleasant Oaks Gem and Mineral Club of Dallas

As discussed in the original article in the May Chips and Chatter, there are several polymorphs of quartz – minerals with the same chemical composition but slightly differing crystalline structures. Two high temperature polymorphs were mentioned, Tridymite and Cristobalite. This article explores Cristobalite and was inspired by an article in a recent Rock and Gem magazine article – and yes, I do read the Rock & Gems Kids section.

Crisobalite is a little softer than quartz coming in at 6 to 7 on Mohs scale. However, it is somewhat harder than the host obsidian that is only 5 to 5.5 on Mohs scale.

Crisobalite also is slightly less dense than quartz and obsidian having a specific gravity of 2.32 – 2.36 compared to 2.65 for quartz and 2.4 for obsidian. The biggest difference is that crisobalite forms at high temperature. The crystal class for crisobalite is tetragonal. Above 1,470 °C, crisobalite forms with a cubic crystal structure. At lower temperatures, the structure changes to a tetragonal crystal. A tetragonal crystal is a rectangular prism with a square base and top. These crystals tend to pack into octahedrons or spheres. Crisobalite is white in color.

So what is crisobalite? You have likely seen it. Crisobalite is the white snowflakes in snowflake obsidian. In my youth, I thought the mixed with the obsidian when it formed. Now I know that it is quartz formed by the devitrification of obsidian. Devitrification is the process of breaking down a glass into a rock. Snowflake obsidian has a head start in the devitrification process of turning into rock by forming the mineral crisobalite – remember that

minerals form rocks. Above the critical temperature of 1,470 °C, some of the obsidian glass starts to crystallize. The reason that crisobalite remains in the obsidian is that once it forms, it takes additional energy to return to the glass state, but the obsidian is lava that is cooling rapidly; there is no surplus energy to turn the crisobalite back to obsidian.

The process of devitrification slowly changes obsidian glass into a rock. Obsidian is rarely older than 20 to 30 million years. Because of devitrification, most obsidian older than 20 – 30 million years old no longer exists; the obsidian changed into rocks. In terms of geologic time, that is relatively recent. A mass extinction about 66 million years ago wiped out all the large dinosaurs.

There are many places in the world where you can find obsidian. Virtually any place you can find a volcano you may find obsidian. In the United States, Oregon, California, and Wyoming have large quantities of obsidian. There has not been any recent volcanic activity in Texas, so do not expect to find obsidian here.

Obsidian
Reference:

- Brace-Thompson' Crisobalite; Rock & Gem Magazine, October 2018; Beckett Media LLC; Dallas, TX
- Crisobalite, Wikipedia, <https://en.wikipedia.org/wiki/Crisobalite>
- Obsidian, Wikipedia, <https://en.wikipedia.org/wiki/Obsidian>
- Obsidian, <http://volcano.oregonstate.edu>
- Snowflake Obsidian, The Earth Story, <http://the-earth-story.com/>



The United Nations Proclaims 2019 the International Year of the Periodic Table of Chemical Elements

Mitch Portnoy, NY Mineralogical Club via the October 2018 AFMS Newsletter



On 20 December 2017, during its 74th Plenary Meeting, the United Nations (UN) General Assembly 72nd Session has proclaimed 2019 as the International Year of the Periodic Table of Chemical Elements (IYPT 2019). In proclaiming an International Year focusing on the Periodic Table of Chemical Elements and its applications, the United Nations has recognized the importance of raising global awareness of how chemistry promotes sustainable development and provides solutions to global challenges in energy, education, agriculture and health. Indeed, the resolution was adopted as part of a more general Agenda item on Science and technology for development. This International Year will bring together many different stakeholders including UNESCO, scientific societies and unions, educational and research institutions, technology platforms, non-profit organizations and private sector partners to promote and celebrate the significance of the Periodic Table of Elements and its applications to society during 2019.

The development of the Periodic Table of the Elements is one of the most significant achievements in science and a unifying scientific concept, with broad implications in Astronomy, Chemistry, Geology, Physics, Biology and other natural sciences. The International Year of the Periodic Table of Chemical Elements in 2019 will coincide with the 150th anniversary of the discovery of the Periodic System by Dmitry Mendeleev in 1869. It is a unique tool enabling scientists to predict the appearance and properties of matter on Earth and in the Universe. Many chemical elements are crucial to enhance the value and performance of products necessary for humankind, our planet, and industrial endeavors. The four most recent elements (113, 115, 117 and 118) were fully added into the Periodic Table, with the approval of their names and symbols, on 28 November 2016.

The International Year of the Periodic Table of the Chemical Elements will coincide with the Centenary of IUPAC (IUPAC100). The events of IUPAC100 and of IYPT will enhance the understanding and appreciation of the Periodic Table and chemistry in general among the public. The 100th Anniversary of IUPAC will be on the UNESCO Calendar of Anniversaries on 28 July 2019.

“As the global organization that provides objective scientific expertise and develops the essential tools for the application and communication of chemical knowledge for the benefit of humankind, the International Union of Pure and Applied Chemistry is pleased and honored to make this announcement concerning the International Year of the Periodic Table of Chemical Elements” said IUPAC President, Professor Natalia Tarasova.

Chemical Elements play a vital role in our daily lives and are crucial for humankind and our planet, and for industry. The International Year of the Periodic Table of Chemical Elements will give an opportunity to show how they are central to linking cultural, economic and political aspects of the global society through a common language, whilst also celebrating the genesis and development of the periodic table over the last 150 years. It is critical that the brightest young minds continue to be attracted to chemistry and physics in order to ensure the next generation of scientists, engineers, and innovators in this field. Particular areas where the Periodic Table and its understanding have had a revolutionary impact are in nuclear medicine, the study of chemical elements and compounds in space and the prediction of novel materials.

The IYPT is endorsed by a number of international Scientific Unions and the International Council for Science (ICSU). The IYPT will be administered by an International Steering Committee in collaboration with the UNESCO International Basic Sciences Programme and an International Secretariat, to start operating in early 2018. In addition to IUPAC, IYPT is supported by the International Union of Pure and Applied Physics (IUPAP), the European Chemical Sciences (EuChemS), the International Astronomical Union (IAU) and the International Union of History and Philosophy of Science and Technology (IUHPST).



A Word from the President

by Sandy Fuller, President, from the October 2018 AFMS Newsletter

This has been an amazing year...traveling around the country and meeting some really great people. I'm struck by the passion of our members, whether they are talking about collecting, their amazing finds or how to make our clubs and federations stronger. It's has been a privilege to "lead" such an enthusiastic crowd. It was only possible thanks to those who stepped up to provide leadership in our local clubs, our regions and the AFMS.

My goal this year was to focus our efforts on making our clubs stronger. There are so many people who share our interests but many of them are still thinking they are maybe just a little bit weird for liking something so simple as a rock. Too often, the newbie collector is surprised to not only find that there are others who share the passion, but actually whole clubs of rockhounds.

So let's keep the outreach going. Roll out the welcome mat and invite new ideas as well as new members. Enter our competitive programs to rate your efforts and get ideas for strengthening your club. Then tell others about your successes.

Don't forget to share your talents. Show others how to do lapidary arts or prepare a fossil. Use your work place skills to strengthen your club. Joins others to learn a new skill that you, in turn, can share with others. We all have something to contribute. Together we can help each other grow and learn about our wonderful natural world and the lapidary arts that help us show off its beauty.

Finally, I would like to extend a big thank you to all the AFMS committee chairs. Each of you does so much for our federation. A special thank you goes to those who stepped up to fill a job during this year and those who needed to step down: Don Shurtz replaced Dan Imel as AFMS Website Contest Chair, Judi Allison replaced Evelyn Cataldo as AFMS Club Rockhound of the Year and Darrell Watkins replaced Doug Moore as Program Competitions Chair.

Sandy

Safety Matters - Ticks, Chiggers, Mesquites, Oh My!

by AFMS Safety Chair, Ellery Borow, from the October 2018 AFMS Newsletter



Ticks, chiggers, mesquites, fire ants, black flies, scorpions, venomous snakes, poison ivy earthquakes, volcanoes, flashfloods, and excessive heat -oh my! Pretty much anywhere a rock collector goes one will find something in the area that needs special attention. That something can be a little thing or a big thing, but still a thing which should, for safety sake, be addressed and not ignored.

We collectors check maps, monitor tire pressure, bring water, update medical aid kits, research what mineral might be found in the area and soon. We might be well advised to also check into things which might bug us on our trips... things such as bugs and bears and storms and snakes.

Fire ant bites are not fun. Mesquites and ticks are transmission vectors for more and more diseases. Weather patterns are changing. For these and other local conditions for which the well prepared collector should be aware, there are numerous sources of data. NOAA weather services, state and local health services monitor area insect populations, and even the USGS has websites which report on earthquake and volcanic activity.

A rain in the mountains and the resulting flash flood 6 miles away could isolate our vehicle, knowledge of how long a tick takes to transmit Lyme Disease, how to prepare for a venomous snake in the trail, precautions concerning fresh bear tracks in the area-all these take time to research and understand but the well prepared collector is a safer collector. It is, in this time of internet, far easier and less time consuming than yesteryear to be prepared and be safe. Truly, there is sometimes too much information out there to review it all.

When traveling, most rock collectors bring at least the basics - maps, water, food, medical kit, personal protective equipment and so on. Besides the basics, it is the wise collector who prepares for any additional hazards the area has to offer. Such additional protections might be as simple as bringing an extra strong mosquito repellent.

Please don't let little flying things bug you. Your safety matters.

Shows and Activities – Upcoming Show and Activity Dates

- Oct 5 - 7, Albuquerque, NM, Jay Penn, NM State Fairgrounds, www.albfallshow.wix.com/abq-fall-show
- Oct 6-7, Fort Worth, TX, CERA, 3300 Bryant Irving Road, Fort Worth, TX
- Oct 12 – 14, Dallas, TX, International Gem and Jewelry Show, Market Hall, <https://www.intergem.com/>
- Oct 12 - 13, Mount Ida, AR, Mount Ida Chamber of Commerce, Montgomery County Fairgrounds, 31st Annual Amateur World Championship Quartz Digging Contest, www.mountidachamber.com
- Oct 13 - 14, Amarillo, TX, Golden Spread GM&TS, Amarillo Civic Center, amarillotreasure.com
- Oct 13 - 14, Temple, TX, Tri-City G&MS, Mayborn Civic Center, Iroiston@ht.rr.com
- Oct 19 - 21, Austin, TX, Austin G&MS, Palmer Events Center, www.agms-tx.org
- Oct 19 – 21, Houston, TX, International Gem and Jewelry Show, NRG Center, <https://www.intergem.com/>
- Oct 27 – 28, Oklahoma City, OK, Oklahoma City M&GS, Oklahoma State Fair Park, www.OMGS-minerals.org
- Nov 9 - 11, Houston, TX, Houston G&MS, Humble Civic Center, www.hgms.org
- **Nov 17-18, Mesquite, TX, Dallas G&MS, Mesquite Rodeo Center Exhibit Hall, www.dallsgemandmineral.org**
- **Jan 19 - 20, 2019, Fredericksburg, TX, Fredericksburg Rockhounds and SCFMS Convention, Lady Bird Johnson Park**

Ref:

- July - August 2018 SCFMS Newsletter
- Rock & Gem Show Calendar, <http://www.rockngem.com/show-dates-display/?ShowState=ALL>

Bench Tips – Secret Ingredient

Brad Smith, from the July – August 2018 SCFMS Newsletter

Those of us who use paste solders sometimes find an old tube has dried out. There should be some way to recondition it, but what to use? Calling tech support at the suppliers didn't work for me. Either they don't know what the ingredient is or won't tell you the secret.

None of us likes to waste an expensive material, especially at \$16 - 20 a tube, so I've often experimented with ways to rejuvenate it. Mixing in a liquid flux doesn't work. When the liquid starts to boil off, it spatters the solder in all directions.

But after several failed experiments I finally found a way that does work. My secret ingredient is Vaseline petroleum jelly. Mix in just enough to restore the consistency to something that's usable. If you use too much, the lump of solder will flow over a wide area as soon as the torch starts heating it.

If your solder is in a syringe, it can be a little difficult to get the plunger out. I find the easiest way is to poke a hole through the solder from the tip to the rubber plunger (a bur shaft was the right size for my tube). The hole allows air to enter between the solder and the plunger, allowing the plunger to be slowly withdrawn. Once the solder is out of tube, you can easily add the Vase-line, mix it up, and spoon it back into the syringe.



Visit an Area Club

- [Arlington Gem & Mineral Club](#), 1408 Gibbins, Arlington, TX, 1st Tuesday of each month at 7:30 pm
- [Cowtown Gem, Mineral, & Glass Club](#), meets the 2nd Tuesday at 7:00 pm, CERA 3300 Bryant Irvin Rd. Fort Worth
- [Dallas Bead Society](#), meets 1st Saturday of each month at 10:00 am at The Point at CC Young, 4847 W. Lawther Dr., Dallas, TX
- [Dallas Gem & Mineral Society](#) meets the 3rd Tuesday of each month at 7 pm, American Legion, 10205 Plano Rd, Dallas (next to their shop)
- [Dallas Paleontological Society](#), 2nd Wed. of each month at 7:00 pm, Brookhaven College, Building H, 3939 Valley View Lane, 75244
- [Fort Worth Gem & Mineral Club](#), 4th Tuesday of each month at 7:30 pm, 3545 Bryan Avenue, Ft. Worth
- [Oak Cliff Gem & Min Soc.](#), 4th Tuesday of each month at 7:30 pm, Unitarian Universalist Church, 3839 W. Keist Blvd, Dallas,
- [Pleasant Oaks Gem & Mineral Club](#), meets the 1st Thur. of each month at 7:30 pm, Garland Women's Activities Bldg., 713 Austin, Garland,

PRESIDENT'S MESSAGE

Ling Shurtz, POGMC President

Our nominating committee will report out at the October meeting. Election will also be in October. New officer will be installed in November. IGEM is here. We had tickets at the last meeting. Set-up on Wednesday, October 10. Plan to arrive at Market Hall around noon. The IGEM show will be Friday through Sunday, October 12 -14.

CLUB OFFICERS FOR 2018

President: Ling Shurtz
1st VP, Programs: Carolyn Grady
2nd VP, Field Trips: David Dobson
Secretary: Lee Elms
Treasurer: Del Grady
Editor: Don Shurtz
E-mail: don.shurtz@gmail.com,
L.SHURTZ@gmail.com

MEETING MINTUES

Ling Shurtz, President, called the September 6, 2018 meeting to order at 7:30 PM

Ling led the Pledge of Allegiance

Quorum: We have a quorum as defined by the Club's Constitution and By-Laws

Sunshine Report: Butch is back at the hospital for testing, but plans to be at IGEM

Visitors: Rosella, Gabriella, and Isabella Dobson were present for a short while at the beginning of the meeting

Minutes: The minutes of the August meeting as printed in the September Chips and Chatter were discussed. A motion to accept the minutes as printed was made by Carolyn and seconded by Don. The motion passed.

Treasurer's Report: Del Grady presented the Treasurer's Report. A motion to accept the report was made by Warner and seconded by Carolyn. The motion passed.

Old Business: There was no old business.

New Business:

Shows:

- **Oct 6-7, Rockfest, CERA, 3300 Bryant Irving Rd, Ft. Worth, TX, Admission is free**
- **IGEM October 12 – 14 set up on October 10. Market Hall, Dallas, TX**
- Regional shows:
 - Oct 5 - 7, Albuquerque, NM, Jay Penn, NM State Fairgrounds, www.albfallshow.wix.com/abq-fall-show
 - Oct 12 - 13, Mount Ida, AR, Mount Ida Chamber of Commerce, Montgomery County Fairgrounds, 31st

Chips and Chatter

Pleasant Oaks Gem and Mineral Club of Dallas, TX

Annual Amateur World Championship Quartz Digging Contest, www.mountidachamber.com

- Oct 13 - 14, Amarillo, TX, Golden Spread GM&TS, Amarillo Civic Center, amarillotreasure.com
- Oct 13 - 14, Temple, TX, Tri-City G&MS, Mayborn Civic Center, Iroiston@ht.rr.com
- Oct 19 - 21, Austin, TX, Austin G&MS, Palmer Events Center, www.agms-tx.org
- Oct 19 – 21, Houston, TX, IGEM Show, NRG Center, <https://www.intergem.com/>
- Oct 27 – 28, Oklahoma City, OK, Oklahoma City M&GS, Oklahoma State Fair Park, www.OMGS-minerals.org
- **Nov 17-18, Mesquite, TX, Dallas G&MS, Mesquite Rodeo Center Exhibit Hall, www.dallasgemandmineral.org**

The Nominating Committee for 2018-2019 Club Officers was established. Carolyn and Don are members

After the Break, David Dobson gave a presentation about making spheres. The presentation started with his family's tour of the US where rocks were collected for sphere making and other projects. David described the classical method of cutting a sphere rough using a slab saw (26 or more cuts) and a new approach using a core drill. The core drill method involves only 3 cuts (significantly less than using a slab saw) and results in a rough that requires considerably less course grinding. With either method of forming the sphere rough, he uses a standard 3-head grinding/polishing machine. He indicated the time required was about 6 hours per sphere – but he makes many at one time – a production line approach that saves time in switching grinding, sanding, and polishing heads. He has made spheres from many different rocks including marble, sandstone, jasper, and agate.

MEETING

Our next meeting will October 4, 2018 starting at 7:30 PM. We will view a segment of the 3 disc video series from the 2017 Dallas Mineral Collecting Symposium. The topic will be "The Secret World of Ruby and Sapphires" by Richard Hughes.

SHOW AND TELL

Bring an October birthstone – Opal or Tourmaline. Also, to go with the presentation, bring a ruby or sapphire

VISITORS ARE ALWAYS WELCOME

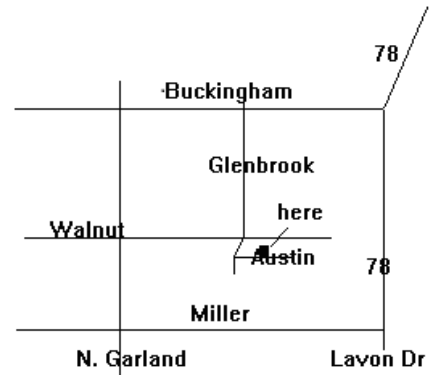
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PLEASANT OAKS GEM and MINERAL CLUB of Dallas



Meetings
 First Thursday of each month, 7:30 PM
 Garland Women’s Activities Building
 713 Austin St., Garland, TX
 (Northeast corner of Austin & Glenbrook)

Membership
 Single Adult: \$16.50,
 Junior: \$5.00, Family: \$27.50
 (Plus badge fee for new members)



PURPOSE

The Pleasant Oaks Gem and Mineral Club of Dallas is organized for charitable and educational purposes to promote interest in the various earth sciences, particularly those hobbies dealing with the art of cutting and polishing gemstones, the science of gems, minerals and metal crafts, as well as their related fields. Pleasant Oaks Gem and Mineral Club of Dallas is a Section 501(c)(3) not-for-profit organization

CHIPS AND CHATTER

Pleasant Oaks Gem & Mineral Club
 PO Box 831934
 Richardson, TX 75083-1934

To:

VISITORS ARE ALWAYS WELCOME

Next Meeting: October 4, 2018, 7:30 PM at the Garland Activities Building
 Presentation: “The Secret World of Ruby and Sapphires”
 by Richard Hughes, from the 2017 Dallas Mineral Collecting Symposium DVD set

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