

Quartz

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Characteristics¹

Formula: SiO_2

Colour: Colourless to a range of colours, including purple, rose, red, black, yellow, brown, green, blue, orange

Lustre: Vitreous (transparent).

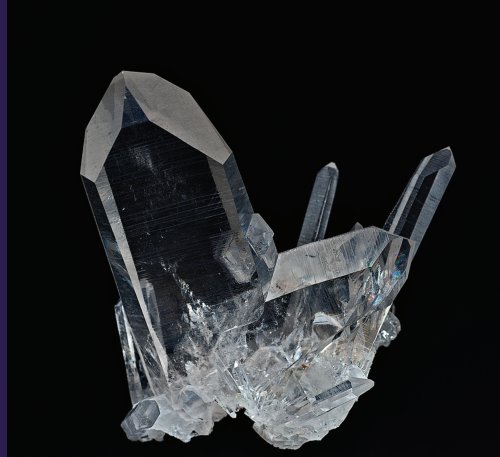
Hardness: 7.

Habit: pyramidal.

Cleavage: none.

Fracture: conchoidal.

Other: Piezoelectric potential.



A water clear cluster of quartz with prominent Japan Law Twin from Mt Ida, Arkansas, US.

Overall specimen size: 6.8 x 7.7 x 4 cm.

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Occurrences of Quartz

- ◆ As a rock forming mineral in igneous, metamorphic and sedimentary rocks¹.
- ◆ Within hydrothermal veins¹.
- ◆ High-purity quartz is mined from alaskite in Spruce Pine, NC. This is a type of granite formed almost entirely of quartz and alkali feldspar, likely intruded during the Appalachian Orogeny³.



Amethyst
2.4 x 2.7 x 1.6 cm.
© Rob Lavinsky⁴.



Citrine
8 x 5 x 5 cm.
© Martins da Pedra⁵.



Rose Quartz
7.1 x 5.6 x 3.9 cm.
© Rob Lavinsky⁶.

FACT: Electronics use cultured quartz, which is grown in pressurised containers⁷.



Economics of Quartz

The value of industrial cultured quartz in 2021 was \$200 per kilogram⁸. While demand is expected to increase due to the consumer electronics market, global reserves are large⁸, thus quartz is not critical.

Other important uses of quartz are within the production of glass, ceramics, cement, fiber optics, watches and building stones⁹.

TYPES OF QUARTZ¹⁰

- ◆ Agate - banded variety of chalcedony
- ◆ Amethyst - purple
- ◆ Aventurine - feebly translucent chalcedony
- ◆ Carnelian - flesh red chalcedony
- ◆ Cat's Eye - chatoyant
- ◆ Chalcedony - microcrystalline quartz
- ◆ Chert - cryptocrystalline quartz
- ◆ Chrysoprase - apple green chalcedony
- ◆ Citrine - yellow
- ◆ Flint - microcrystalline quartz
- ◆ Hornstone - flint
- ◆ Jasper - red or brown chalcedony
- ◆ Moss Agate - variety of chalcedony
- ◆ Plasma - green chalcedony
- ◆ Prase - leek green chalcedony
- ◆ Rock Crystal - transparent quartz
- ◆ Rose Quartz - rose coloured
- ◆ Sapphire Quartz - blue coloured
- ◆ Smoky Quartz - brown to black
- ◆ Tiger Eye - pseudomorph of asbestos

FACT: Quartz is one of the most abundant minerals on Earth's surface⁷.



Quartz in History¹¹

337 transparent quartz crystal fragments were found at a ceremonial site called Dorstone Hill, western England, which is a Neolithic burial site aged at over 6,000 years old.

As there are no local deposits of these rock crystals, archaeologists suggest that they must have been transported from Wales, up to 100 miles (160 km) away.

The crystals were then shaped, perhaps during a community gathering event, and left around the site, including at burial mounds.



FACT: Titanium is a trace element that can be substituted for silicon in quartz. As this is dependant on temperature, it can be used as a geothermometer: "TitaniQ"¹³.



SOURCES

1. <https://www.mindat.org/min-3337.html> (grey)
2. <https://www.mindat.org/photo-350034.html> (grey)
3. <https://www.mindat.org/min-48135.html> (grey)
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12. Overton et al. (2022). Not All That Glitters is Gold? Rock Crystal in the Early British Neolithic at Dorstone Hill, Herefordshire, and the Wider British and Irish Context. Cambridge Archaeological Journal, 1-20. doi:10.1017/S0959774322000142 (scholarly)
13. Wark, D.A., Watson, E.B. TitaniQ: a titanium-in-quartz geothermometer. Contrib Mineral Petrol 152, 743–754 (2006). <https://doi.org/10.1007/s00410-006-0132-1> (scholarly)