Quartz Cells and Quartz Cuvettes

One of the most widespread inquiries among the scientific community is deciphering the difference between a quartz cuvette and quartz cell. Oftentimes the two terms get intertwined.

Cell: Merriam-Webster’s definition is: a small compartment, cavity or bounded space

Cuvette: A small laboratory vessel or tube that is often transparent (Webster)

Quartz: A hard mineral that is comprised of silicon dioxide occurring in colorless, transparent or colored hexagonal crystals or crystalline masses (Webster)

It is clearly to see by Merriam-Webster’s definition that a cell and cuvette are almost identical in meaning. In lieu, the quartz cell and quart cuvette are the same.

In scientific laboratories, a quartz cuvette used to be called a quartz cell and the term quartz cuvette is still used among older generation researchers. In modern terminology the term quartz cuvette is most often used.

However, there is a wide array of quartz and the difference between quartz and fused silica is vast. The term quartz is a generic term and has several meanings such as natural quartz, fused silica quartz, infrared (IR) quartz, Extrasil (ES) quartz or ultraviolet (UV) quartz.

Fused silica is a certain type of quartz that is specially manufactured. It is ideal for countless optical applications like manufacturing quartz cells, flow cells for flow cytometers, quartz microfluidic chips or spectrophotometer quartz cells. In fact, based on current standards a spectrophotometer cuvette is generally made of synthetic fused silica quartz or optical glass.

One of the most superior grade synthetic quartz is the Extrasil (ES) quartz. It has impeccable chemical and optical properties that warrant very accurate samples. The ES quartz is a synthesized fused silica material that has unmatched properties within the ultraviolet visible range (UV/VIS) and far UV range. As well, it has a wide transmission range from 180 nanometers (nm) to 2,500 nm. In fact, studies show that scientist and researchers consistently have over 80 percent absorbance using ES quartz.

The ideal quartz cuvette or quartz cell does not have impurities and is as clear as possible. Yet engineering a high quality quartz cuvette is a fine art and companies that have the ability or proficiency to make synthesized fused silica quartz are rare. One of the most acclaimed leaders in the silicon industry is NSG Precision Cells. They are well known for their absolute quality flow cells, flow cytometry cuvettes, spectrophotometer cuvettes and several other fine quartz products.

NSG Precision Cells was time-honored in 1958 and is associated with the Tosoh Quartz family, who is a universal corporation providing leading-edge technology and products since 1935.

With over 50 years of proficiency and content customers, NSG Precision Cells takes pride in providing high quality cuvettes made of thermally fused ES Quartz. Additionally, NSG Precision Cells matches or exceeds the standards recognized by the National Institute of Standards & Technology (NIST), USA. Some of the highlighted features for their quartz cuvettes include:

* A wavelength range of 170 to 2,500 nm
* Transparent cuvettes with no impurities
* No absorption bands in the visible region
* No OH absorption band (water band) at 2700 nm
* Tolerates high output lasers and withstands high pressure with thermal fusing

At NSG Precision Cells, their specialty is high quality designing and manufacturing products made of fused silica quartz and ES quartz. Through advanced technology and quality assurance, NSG is absolutely an essential quartz cell or quartz cuvette for any type of laboratory.