

## GE214

Momentive's family of grade **GE214** products is the worldwide standard for clear fused quartz tubing. The material offers high purity, high transmittance, high temperature, and low hydroxyl (OH)- content, and typically results in excellent visual, thermal, and mechanical properties with tight dimensional tolerances. It can typically withstand the wide thermal gradients and chemical environments of wafer processing operations due to its (OH)- content of typically less than 10 ppm water in most grades. Low (OH)- minimizes the sag rate at diffusion temperatures, and effectively retards the progress of devitrification. Because of its low hydroxyl content, Momentive's tubing does not require special coatings that could potentially release contaminants at elevated temperatures.

Grade **GE214** is economical and is available in a full range of tubing and rod (solid) forms and sizes. It typically offers the high purity, elevated temperature characteristics, and low coefficient of thermal expansion required for wafer carriers and push rods used in semiconductor wafer processing and as fiber optic handles. The material is available in rod diameters of 1-55 mm. Very tight quality control and special processing of raw materials is used to achieve low levels of trace element contamination, typically resulting in minimal air lines and inclusions and excellent dimensional stability.

Potential applications in semiconductor, fiber optic, and lamp industries include silicon wafer carriers; fiber optic manufacturing handles; high performance and high temperature lamps such as mercury and quartz halogen; ultraviolet (UV) lamps; thermocouples; semiconductor quartzware; waveguide handles; and other high temperature products. Certain pieces of semiconductor process equipment require a quartz bell jar for the process chamber. Momentive manufactures a selected list of grade GE214 standard bell jar bodies and blanks that can be used by fabricators of finished bell jars. With this bell jar body, fabricators can add a top and bottom flange to make a high quality finished product.

Grade **GE214 LD** is Momentive's large diameter tubing. For all but highly specialized operations, this low-cost tubing typically offers the levels of purity, sag resistance, furnace life, and other properties required by diffusion and CVD processes.

Grade **GE214 LDH** offers the same excellent properties as grade GE214, but is better positioned for large diameter applications. This furnace tubing typically offers excellent performance at elevated temperatures, and offers process engineers a better balance between the effects of higher temperatures and heavier wafer loads. Potential applications include use by the semiconductor industry for diffusion, oxidation, and LPCVD processing.